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# Evaluating the Effects of the National Health Insurance Act in Ghana: Baseline Report

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# Abstract

Health insurance schemes, whether community-based or national, are rapidly increasing in West Africa. The number of mutual health organizations (MHOs) in Ghana grew from 47 in 2001 to 168 in 2003. Yet there is limited evidence on factors that predict enrollment in such schemes, and whether enrollment increases health care utilization and ultimately health outcomes. In recognition of the potential of MHOs to eliminate user fees and increase access to health care, Ghana enacted the National Health Insurance Act in 2003, mandating the establishment of district-wide MHOs. The present study was undertaken to evaluate the effects of the National Health Insurance Scheme (NHIS) in Ghana, serving as a baseline with which to compare subsequent surveys. The study design is a before and after impact evaluation involving six districts in Ghana: Nkoranza, Kwahu South, Ahanta West, Ajumako Enyan Essiam, Offinso, and Savelugu/Nanton. Patient exit interviews were conducted in all six districts, and representative household surveys were conducted in two districts. Surveys captured information on household characteristics, curative care, and maternity care. Two of the study districts (Nkoranza and Kwahu South) had existing private schemes at the time of the survey. Both schemes primarily offered coverage for inpatient care and charged annual premiums of approximately 30,000 cedis (US$3.60) per person. Results indicated that household head characteristics (older age, female gender, higher education, and employment) predicted insurance enrollment at the household level, whereas these factors plus household wealth increased the likelihood of enrollment of an individual. Referring to outpatient care seeking, insured respondents were more likely than uninsured to seek treatment and to do so promptly. Insurance enrollment was the most important predictor of being able to afford hospital care. Enrollment also protected respondents from being detained in hospital due to inability to pay the bill. Marginal insurance effects were found in relation to prenatal care, but insured women in Nkoranza were significantly more likely to deliver by caesarean. The combined effect of insurance enrollment and complicated delivery provided protection from high out-of-pocket payments. Comparing premiums for the MHOs in the study districts with those of the NHIS suggests that the government-established NHIS premium of 72,000 cedis per adult is within reach of most Ghanaian families, and offers a better value in that it covers primary health care in addition to inpatient care. Adverse selection is more likely to pose a problem in the near term, given the slow uptake of enrollment. Results found minimal evidence of moral hazard, with the best example being the high rate of caesarean delivery among insured women in Nkoranza (15 percent). However, by covering preventive and primary health care including normal deliveries, the NHIS should be able to minimize overuse of expensive medical interventions. Findings largely demonstrate that enrollment in insurance does offer household income protection for more serious health issues. Uninsured respondents paid 10-20 times more for inpatient care than did insured respondents. Findings for maternity care payments were similar – insured women paid 3-5 times less for delivery care than did uninsured women. Future surveys will be useful to both monitor progress in the study districts and to evaluate the impact of implementing national health insurance in Ghana.

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# Acronyms

| | |
|---|---|
| **CBHI** | Community-Based Health Insurance |
| **DHMT** | District Health Management Team |
| **DHS** | Demographic and Health Survey |
| **GHS** | Ghana Health Service |
| **HH** | Household |
| **HI Act** | National Health Insurance Act 650 |
| **MHO** | Mutual Health Organization |
| **NHIC** | National Health Insurance Council |
| **NHIS** | National Health Insurance Scheme |
| **PHR***plus* | Partners for Health Reform*plus* |
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# Acknowledgments

# Executive Summary

This report provides baseline data on health care seeking behavior and out-of-pocket expenditures prior to the implementation of the National Health Insurance Scheme (NHIS) in Ghana. At the same time, the study provides insights on the effects of enrollment in community-based health insurance (CBHI) schemes on utilization and payment for health care. CBHI schemes increased dramatically in Ghana during the 1990s, largely as a mechanism for avoiding potentially catastrophic health care expenditures associated with the 'cash-and-carry' system of user fees at point of service. The development of these separate community-based initiatives was altered by the passage of the National Health Insurance Act 650 (HI Act) in 2003, which requires the establishment of district-wide insurance schemes as part of the new NHIS. The government of Ghana enacted this law to assure equitable and universal access for all its residents, replacing fee for service with a prepayment mechanism. Some of the existing CBHI schemes have decided to transform their structures and policies to meet the new NHIS requirements, while others have opted to cease to exist. The current report seeks to contribute to the limited body of knowledge of the effects of insurance membership on utilization and affordability of health care.

## Methods

The study design is a before and after impact evaluation. Given the decentralized focus of the NHIS, the evaluation concentrates on the effects of insurance enrollment in six districts in Ghana. The study districts were selected based on wealth designation (deprived and less deprived) and existence of a CBHI scheme. Two districts with existing CBHI schemes were included: Nkoranza and Kwahu South. The other four districts included in the study are: Ahanta West, Ajumako, Offinso, and Savelugu/Nanton. Each represents a different region of the country. In light of time and budgetary restraints, patient exit interviews were conducted in public and private health facilities in all six districts, whereas a representative household survey was conducted in a sub-sample (two) of the districts: Nkoranza and Offinso.

In both districts, multistage cluster sampling was used to select the households. Household samples were selected proportionate to size (i.e., the number of households in a given municipality). Different methods were utilized in the two districts, since Nkoranza had an existing CBHI scheme, and equal sample sizes of insured and uninsured households were desired. Data on membership by municipality was obtained from the Nkoranza scheme manager, which informed the sample selection (and the use of a filter question regarding insurance enrollment).

For the household survey, household heads were asked to list all regular household members, and then identify any members who met the eligibility requirements: 1) ill or injured in the past 15 days; 2) delivered a child in the past 12 months; or 3) hospitalized in the past 12 months. Interviews were then conducted with all eligible respondents. For the patient exit survey, patients were recruited upon discharge from sampled inpatient or outpatient facilities to participate in the study. Both surveys followed the same protocol for eligible minors, whereas the child's caretaker was asked to respond on behalf of the child. Broadly, the questionnaires captured information on treatment seeking, type of

health facility, service intensity, out-of-pocket expenditures, and patient satisfaction, in addition to household characteristics.

Data collection for both surveys was carried out between September and November 2004. The household survey resulted in a total sample of 1,808 households: 1,307 from Nkoranza and 501 from Offinso. A total of 1,318 respondents were obtained for the patient exit survey.

While both surveys captured information on household characteristics (e.g., household size, water source, type of cooking fuel, electricity, ownership of goods, etc), only the household survey collected data on the head of the household (e.g., age, gender, education, and occupation). As such, the household survey permits analysis at the household and individual levels, whereas the patient exit survey only allows the individual (patient) level. For all analyses of household insurance status, the status of the household is determined by whether or not the head of household in enrolled.

## Overview of Existing CBHI Schemes

Two of the study districts had existing CBHI schemes at the time of the survey: Nkoranza and Kwahu South. Nkoranza was one of the first CBHI initiatives, dating back to 1992, whereas Kwahu South began operations in 2001. Generally speaking, both schemes primarily offered coverage for inpatient care at a participating mission hospital. Both schemes encouraged enrollment of all family members to ward against adverse selection. Annual premiums ranged from 25,000 to 40,000 cedis per person.

## Results

### Enrollment in Insurance

Comparison of household characteristics by CBHI status (currently enrolled, formerly enrolled, and never enrolled) reveals that the currently and formerly enrolled households appear very similar, whereas the never-enrolled group is notably different. Never-enrolled households are smaller, less educated, and are less likely to be headed by a female. An exception is that 47 percent of currently enrolled households are in the top two wealth quintiles, compared to 38 percent and 34 percent respectively for the other two groups, and 35 percent for Offinso households. However, a regression analysis on the determinants of household enrollment among Nkoranza households did not find wealth as a significant predictor. Instead, older age (50+) and female gender were strong predictors of enrollment, as were employment and secondary or higher education of the household head. A similar regression predicting individual membership for both household and patient exit respondents did find wealth as a significant factor. For both surveys, individuals from the top two wealth quintiles were significantly more likely to be enrolled. Other important determinants of membership for both surveys included older age of individual and higher education, whereas the household data also revealed female gender and older age of household head as significant predictors.

### Outpatient Care

Outpatient findings are derived from household members who had recently been ill or injured and patients exiting from selected outpatient health facilities. Respondents in this group most frequently cited malaria and aches and pains as reasons for seeking health care, either from the informal or formal sector. Respiratory problems and diarrhea were also common ailments. The majority of respondents for both surveys were female. A substantial proportion of respondents used

medication in their home and/or sought care from an informal source, such as a chemical seller. Whereas there were no strong patterns in determining informal care seeking, insurance membership significantly predicted care seeking from a formal health facility, as did seriousness of the affliction. Wealth and female gender were marginally significant. Nearly all respondents who sought formal care received a consultation, but lab tests and x-rays were much less common. The majority of these respondents also received a drug prescription, and most filled the complete prescription at the facility where they received care. Overall patient satisfaction was very high, ranging from 85 percent to 94 percent for "Very Satisfied." However, insured respondents from both surveys were significantly more likely than uninsured to report they were "Not Satisfied" with the care they received.

Total expenditures for outpatient care (including informal care and transportation costs) were uniform across the surveys, ranging from 22,000 to 29,000 Ghanaian cedis. No differences in payments between insured and uninsured respondents were apparent. This finding is not surprising, as coverage of outpatient services was limited for both insurance schemes included in the study.

**Inpatient Care**

Inpatient findings are based on household members who were hospitalized in the past year, and inpatients discharged from one of the selected hospitals during the study period. Malaria was the most frequently cited reason for hospitalization. Reproductive health, surgery, and respiratory problems were also reported with some frequency. Again, the majority of respondents were women. Insured inpatients from both surveys spent a median of five nights in the hospital, compared to seven nights for uninsured in the household survey, and four nights for uninsured in the patient exit survey. The surveys found evidence of hospitals detaining inpatients due to inability to pay their bill. While this was not a problem for insured patients, a significant number of uninsured patients were affected by this practice (20 percent and 15 percent of uninsured in the household and patient exit surveys, respectively). This was primarily an issue in mission hospitals, and resulted in patients staying an additional three nights on average. Contrary to the outpatient findings, insured patients were significantly more likely to report satisfaction with the inpatient care they received than were uninsured.

Whereas insurance membership had little effect on out-of-pocket payments for outpatient care, enrollment in insurance resulted in lower payments for inpatient care. For both surveys, uninsured respondents living in districts with CBHIs paid the most for inpatient care. Insured household respondents paid an average of 59,000 cedis, compared to 491,000 cedis for uninsured patients. The differential between insured and uninsured respondents in the patient exit survey was even greater – the average payment for insured patients was 15,000 cedis, compared to 349,000 cedis for uninsured patients. A regression analysis on determinants of affordability indicates that insurance enrollment is the most important factor in being able to afford inpatient care. Another key factor for the patient exit sample was mission facility, whereas for the household survey wealth and older age of household head predicted ability to afford inpatient care.

**Maternity Care**

Results on maternity care utilization and payments are drawn from prenatal care and delivery patients leaving selected health facilities, and from women identified in the household survey as having given birth in the past year. The majority of women in both samples received at least four prenatal consultations, the standard of care for Ghana. Most women received prenatal care from a nurse or midwife, and insured women more frequently sought this care from the private rather than the public sector. Among women in the household survey, one-third delivered at home, although this was less common among insured women. The majority of women (80 percent) had a delivery

attended by nurses or midwives, although insured women were significantly more likely to deliver with a physician. The most obvious difference in delivery patterns among insured and uninsured women was the rate of caesarean deliveries – insured women in Nkoranza had twice the rate of caesareans than uninsured women in the same district, and five times the rate of Offinso women. The household survey permits a regression on the predictors of delivery at a modern health care facility. Insurance enrollment was not found to significantly predict modern delivery, although number of prenatal visits and wealth (top wealth quintile) were significant factors of delivery at a health facility. Women in the peak childbearing years (25-34) were less likely to delivery in a facility, which is not surprising as this age group faces the lowest childbearing risk.

While results on prenatal payments mirror those for outpatient care, delivery payments are more in line with inpatient expenditures. Prenatal care payment data is only available for the household survey. Insurance enrollment does not offer protection against higher prenatal payments, as insured women in Nkoranza paid significantly more for prenatal care than did their uninsured counterparts. However, women in Offinso paid the most for prenatal consultations. Comparing average prenatal and delivery payments among women in the household sample, insured women paid much less for delivery care, 71,000 cedis, compared to 178,000 cedis for uninsured women in Nkoranza, and nearly 200,000 cedis for women in Offinso. Insured women in the patient exit survey also paid significantly less than their uninsured counterparts. The regression results support these findings, showing that insurance membership offers significant protection for women in both surveys.

## Discussion and Implications

The report presents important findings on the effects of insurance enrollment on access to and costs of health care, which have potential implications for the NHIS in Ghana. One concern often raised in connection with prepayment schemes is whether or not the premiums are affordable to the target population. The data from this study offers arguments for and against the premiums set by the government of Ghana for the NHIS. A few findings signal potential problems with the government-established premium of 72,000 cedis per adult. The NHIS premium structure requires that household adults pay this amount, and all dependents within the household will be covered. Thus for a family of five with two parents, the annual premium would be 144,000 cedis, falling between the annual total of 125,000 for the Nkoranza scheme and 200,000 cedis for the Okwahuman scheme. Referring specifically to Nkoranza, the household data revealed that half of currently uninsured households were previously enrolled in the scheme. Nearly 80 percent of formerly insured households cited expensive premiums as the reason for ending their membership. And among households that have never enrolled, 60 percent cited the same reason for not enrolling, indicating inability to afford premiums that were lower than those proposed under the NHIS. Also, regression analysis of individual predictors of enrollment found wealth to be a significant factor, suggesting that families with fewer resources would be less likely to join a prepayment scheme.

However, the results also lend support to the established premium structure and rates, perhaps more convincingly than arguments against them. First, although some families in Nkoranza indicated they could not afford the somewhat lower premiums for that CBHI scheme, larger families would benefit from the NHIS structure, as regardless of the number of dependents, the total family cost would be the same (i.e., 144,000 cedis). Second, the NHIS offers more comprehensive benefits, including outpatient curative care and normal delivery care, which make it a better value for families. Third, reviewing average payments made by uninsured patients for inpatient and delivery care, which ranged from 125,000 to 490,000 cedis per episode/event, the cost of 144,000 cedis for an entire family seems quite reasonable. While exemption policies and practices may need to be flexible to

respond to the needs of a given community, the NHIS premium structure and rates seem to be within reach of the majority of Ghanaians.

Another potential side-effect of prepayment schemes is adverse selection, or the practice of individuals at higher risk for health services enrolling at a disproportionate rate to individuals at lower risk. The study revealed some evidence of adverse selection, in that older individuals and women between 25 and 49 were more likely to be insured in Nkoranza, whereas children under 5 were less likely to be insured. This signals a pattern of higher-risk (less healthy) individuals enrolling in the insurance scheme. Given the national scope of the NHIS and its goal of universal enrollment and coverage, adverse selection should not pose a problem in the longer term. However, given the slow and uneven uptake of enrollment in the NHIS thus far, the effects of adverse selection may be more prominent in the near term.

Enrollment in insurance sometimes results in altered behavior, such as utilizing unnecessary medical care, a concept known as moral hazard. The results of the study found scant evidence of moral hazard, with the best example being the high rate of caesarean delivery among insured women in Nkoranza (15 percent). Whereas uninsured women were more likely to deliver at home, insured women were 2-5 times more likely to have a caesarean delivery. The fact that normal deliveries were not a covered benefit of the Nkoranza CBHI scheme, whereas caesarean deliveries were, appears to have influenced the high rate of surgical deliveries for insured women. However, by covering preventive and primary health care including normal deliveries, the NHIS should be able to minimize overuse of expensive medical interventions.

Results of this study largely demonstrate that enrollment in insurance does offer household income protection for more serious health issues. Whereas no effect was evident of insurance protecting respondents from having to pay for outpatient care, this was true of inpatient care. Uninsured household respondents paid nearly 10 times more for inpatient care than did insured respondents, whereas uninsured patient exit respondents paid 13 to 23 times more than their insured counterparts. Findings for maternity care payments were similar – insured household respondents paid 2.5 times less for delivery care than did uninsured women and insured patient exit respondents paid 3–5 times less than uninsured respondents.

Pending available funding, the authors recommend another round of surveys be conducted in the study districts to monitor progress and evaluate the impact of implementing national health insurance in Ghana.

# 1. Introduction

Since independence in 1957, health care financing in Ghana has experienced many transformations, including the recent advent of community-based health insurance (CBHI) schemes, also known as mutual health organizations (MHOs). However, as of 2003, such community schemes covered only a small portion of the country's 19 million population, leaving many Ghanaians vulnerable in the event of a catastrophic illness. In an attempt to increase access and improve the quality of basic health care services, the government of Ghana passed National Health Insurance Act 650 (HI Act) in August 2003. The HI Act mandates the creation of district-level MHOs in accordance with national guidelines and the establishment of a National Health Insurance Council (NHIC). The new law represents a bold and innovative move by government to provide health insurance coverage to all of its citizens. Although MHOs are becoming more widespread in Africa, the attempt to build a national health insurance scheme based upon the MHO concept is novel. Accordingly, there is not a well-developed body of knowledge to guide the government of Ghana in this endeavor.

This document is the baseline report of an evaluation of the National Health Insurance Scheme (NHIS) in Ghana. The evaluation was developed in order to inform the government of Ghana, and in particular the Ghana Health Service (GHS), about the effects of the insurance scheme. As the study was designed primarily to serve the needs of the GHS, it focuses upon health care provision at the district level. Accordingly, national policy and regulatory issues related to the NHIS are outside the scope of this study. Collection, analysis, and well-timed dissemination of baseline data will allow the GHS to make any necessary adjustments to the national insurance program while it continues to proliferate.

As the first element of the larger evaluation, this report focuses on the results of baseline data (household surveys and patient exit interviews) collected in six districts between September and October 2004. Pending the availability of funding, a follow up survey is planned for 2006, allowing time for sufficient implementation of the HI Act.

Specific objectives of the study include:

- Identifying who currently belongs to CBHI schemes, and which household and personal characteristics predict enrollment in CBHI schemes;

- Examining current care seeking behavior (for outpatient, inpatient and maternity care) and how enrollment in CBHI affects access to and utilization of health care services; and

- Measuring current levels of payment for and affordability of health services among insured and uninsured groups.

While it is hoped that this evaluation will prove useful to the government of Ghana as it continues to roll out the NHIS, the findings may have broader application, particularly for other countries in the region that are considering implementing a national health insurance program.

This report is organized as follows. The next section describes the evolution of health care financing in Ghana, culminating in the introduction of national health insurance. Section 3 presents the study methodology and analytic methods used to inform this report. Section 4 presents a brief overview of the study districts to provide background information on the organization of the health care delivery system and to describe two existing CBHI schemes. Findings from the baseline survey are presented in Section 5, starting with a description of the household and patient exit samples by district. Comparisons between insured and uninsured respondents and determinants of enrollment in a CBHI scheme are then described in Section 6. Results on utilization and out-of-pocket expenditures by type of care (outpatient, inpatient, and maternity care) and enrollment status follow in Sections 7, 8, and 9. Section 10 discusses the implications of the findings.

# 2. Health Financing in Ghana

## 2.1 Evolution of Health Care Financing in Ghana

At independence, Ghana provided free health care services to its population through public health facilities. There were no out-of-pocket payments in these facilities and care was financed solely from tax revenues. However, this was not sustainable in light of the needs of other sectors of the economy, and the government had to find alternatives to this financing mechanism. In the 1970s nominal fees were introduced, but these proved insufficient to meet the needs of the health sector. By the middle of the 1980s full cost recovery for drugs, known as "cash and carry," was introduced. However, cash and carry decreased access to health care, particularly among the poor, resulting in a decline in utilization of basic health services. To cushion the burden of out-of-pocket payment for health care, the government introduced an exemptions policy. The policy exempted children under the age of 5, prenatal care for pregnant women, and health care services for the indigent, the elderly (those above 70 years), and for disease-specific services. However, implementation problems at the district level meant that a significant number of clients who qualified for exemptions continued to face barriers in accessing basic health care. For example, in some hospitals, decision making was decentralized and exemptions practices were inconsistent, so that exemptions would be granted for some but not all services.

These problems prompted some health care facilities, mainly mission hospitals, to introduce insurance schemes managed jointly by the facility and the community as a strategy to avoid the problems associated with paying for services at the point of care (i.e., user fees). Schemes such as Nkoranza and Dangme West were established in the early 1990s and became models for other communities to replicate. The subsequent growth in mutual health organizations in Ghana was noteworthy. Whereas 47 MHOs existed in 2001 (Atim, Grey, and Apoya 2001), this number tripled to 159 by 2002, and it continued to rise to 168 MHOs by 2003. However, less than 40 percent of MHOs were functional at that time, and the combined total coverage they extended to the population was just 1 percent (Atim, Grey, and Apoya 2003).

Recognizing the problems that the cash and carry system posed to accessing health care, the government of Ghana declared its intention to abolish the system, and began exploring the feasibility of introducing a national health insurance scheme to be managed at the district level. The goal of such a scheme would be to assure equitable and universal access to health care for all residents of Ghana. Foreshadowing the implementation of such a program, the Ministry of Health's Programme of Work for 2002-2006 stated that:

> The Ghana Poverty Reduction Strategy commits the Ministry of Finance to increase allocation of resources to the Ministry of Health, and reallocation of resources within the Ministry in favour of the deprived regions. The government is committed to removing financial barriers to treatment due to out of pocket payments at the point of service. Prepayment mechanisms will be developed to replace fee for service. The exemption scheme to take care of the vulnerable will be reviewed to make it more accessible.

## 2.2     Introduction of National Health Insurance

In August 2003, the government of Ghana moved from planning to action by passing the National Health Insurance Act. Its primary goal was to improve access to and quality of basic health care services in Ghana through the establishment of mandatory district-level MHOs or district-wide insurance schemes. The policy objective is that:

> within the next five years, every resident of Ghana shall belong to a health insurance scheme that adequately covers him or her against the need to pay out-of-pocket at the point of service use in order to obtain access to a defined package of acceptable, quality health services. (Government of Ghana 2004)

In addition to providing guidance on the structure of the district insurance schemes, the HI Act provides the legislative framework for the establishment of a regulatory body, the National Health Insurance Council. The role of the NHIC is to register, license, and regulate health insurance schemes and to accredit and monitor health care providers operating under the schemes. It plays a key role in guiding implementation efforts and management of the National Health Insurance Fund. The HI Act stipulates three types of schemes: District Mutual Health Insurance Schemes, Private Commercial Health Insurance Schemes, and Private Mutual Health Insurance Schemes. A Legislative Instrument, outlining the regulations for implementation at the district level, was approved and published in January 2005. One of the key regulations that it specified is the annual premium, set at a minimum of 72,000 cedis per adult. In a typical two-parent family with three children, the entire family would be covered for 144,000 cedis per year (approximately $17.00 U.S. dollars).

The NHIC developed the benefit package, which is intended to cover basic health care services, including outpatient consultations, essential drugs, inpatient care and shared accommodation, maternity care (normal and caesarean delivery), eye care, dental care, and emergency care. Certain public health services historically provided for free, such as family planning and immunizations, will be covered under the NHIS. District MHOs must adhere to the defined benefit package. See Annex A for a comprehensive list of covered services.

Some services deemed either unnecessary or too expensive are excluded from coverage. These include cosmetic surgery, drugs not listed on the NHIS drugs list (including antiretroviral drugs), assisted reproduction, organ transplantation, and private inpatient accommodation. The full list of exclusions is provided in Annex B.

To mobilize additional funds to support implementation of the district mutual health insurance schemes, the government of Ghana instituted a National Insurance Levy of 2.5 percent on specific goods and services. In addition, 2.5 percent of the 17.5 percent social security contributions paid by formal sector employees will automatically be diverted to support the NHIS, and formal sector employees and their dependants will automatically be enrolled in their district scheme. It is anticipated that approximately 80 percent of the NHIS will be financed by these taxes. For those in the informal sector, community health insurance committees will categorize residents into social groups based on economic status, and those identified as 'core poor' will be exempt from paying premiums (Government of Ghana 2004).

Under the HI Act, local district assemblies have the responsibility for initiating the district mutual health insurance schemes. Specifically, district assemblies are tasked with promoting the schemes, identifying human resources to provide technical support for the establishment of the

schemes, and carrying out social mobilization. The district health insurance schemes are mandated to operate exclusively for the benefit of their members.

Although numerous MHOs have existed in Ghana, and indeed in other West African countries, the HI Act marks the first attempt effort in the region to institute a nationwide insurance scheme with the ambitious goal of achieving universal coverage.

# 3. Methodology

The overall design of the study is a before and after impact evaluation. Given the decentralized approach of the National Health Insurance Scheme, the evaluation focuses on the effects of the Health Insurance Act in six districts in Ghana. The preferred methodology for capturing the desired information (household assets, insurance membership, health care utilization, and out-of-pocket health care expenses) would be to conduct population-based surveys in each district. However, given the cost and time requirements of such surveys, this was not possible. Instead, two districts were selected for population surveys, and to supplement this, patient exit interviews were conducted in public and private facilities in all six districts.

## 3.1    Selection of Districts

The study districts were purposively selected to reflect: 1) schemes with and without existing mutual health organizations and 2) differences in the wealth classification of the district. It was thought important to include districts with existing insurance schemes, as the HI Act will affect these existing schemes through standardizing benefit and premium packages, as well as possibly leading to the launch of competing schemes within the district. In terms of wealth, Ghana classifies districts as deprived and less deprived, and this factor was also used in the selection of the study districts.

District health management team (DHMT) directors from districts under consideration were invited to a workshop in July 2004 to learn about the planned study and help guide the process. Six districts were selected to participate at the conclusion of this workshop. The districts are presented in Table 3.1 according to the criteria each meets. The asterisked districts, Nkoranza and Offinso, were selected for the household survey.

### Table 3.1 Selected Study Districts by Category

| Scheme Category | Deprived District | Less-deprived District |
|---|---|---|
| Existing CBHI scheme | Nkoranza* | Okwahuman |
| No pre-existing insurance scheme | Savelugu | Offinso* |
|  | Ajumako Enyan Essiam | Ahanta West |

\* Districts selected for the household survey in addition to the patient exit survey

## 3.2    Preparation for Data Collection

The household survey and the exit interview survey were structured to be as similar as possible. The broad types of questions posed to respondents addressed informal and formal care seeking, health care expenditures, insurance status, and household characteristics. Identical questions pertaining to household characteristics and assets were asked of both types of survey respondents, to make it possible to create comparable wealth indices between the household and patient exit respondents.

Partners for Health Reform*plus* (PHR*plus*) and GHS Health Research Unit staff oversaw the training of 34 data collectors and supervisors, which took place in August 2004. Participants included Accra-based data enumerators and district health teams. The Accra enumerators were trained in the household survey instruments (head of household and curative eligible) and the patient exit survey, as they would be responsible for conducting the household interviews and outpatient interviews at selected health facilities. The district teams, which comprised staff from hospitals, the DHMT, and in some cases the district assembly, were trained in the use of the exit interview questionnaire, as they would be collecting inpatient exit data in their respective districts. The household questionnaires were pre-tested in urban and rural communities in the Akwapim North district of the Eastern Region (a non-study district). The patient exit interviews were pre-tested at the district hospital in Akwapim North. Modifications were made to both survey instruments after the pretest.

## 3.3    Sample Design and Data Collection

### 3.3.1    Household Survey

Sample sizes were determined based on the need to detect a 10-percentage point change in variables of interest, with 95 percent certainty. The sampling approaches for Nkoranza and Offinso were slightly different, due to the fact that an insurance scheme existed in Nkoranza, but not in Offinso. Since we would be comparing Nkoranza insured households to uninsured households in the same district and in Offinso, the three groups would have to be approximately the same size. This resulted in a desired sample size of 1,300 for Nkoranza, equally divided into insured and uninsured households. Given the high proportion of insured households in Nkoranza, oversampling was necessary to obtain the desired sample of uninsured households. In the Offinso district, where no insurance scheme was in place, a systematic selection of households was conducted without regard to insurance status. The target sample size for Offinso was 500 households.

In both districts, multistage cluster sampling was used to select the households. In each district, urban and rural municipalities were selected based on population size, geographic dispersion, and accessibility. Ghana classifies towns with more than 5,000 residents as urban (towns), and those with fewer residents as rural (villages). All urban towns in each district were selected into the sample. Villages were selected based on population size and geographic location in order to adequately represent the district. Accessibility to the site was also a consideration, as the fieldwork was conducted in the rainy season. In Nkoranza, data on membership by municipality was obtained from the scheme manager, and this as well as the number of households informed the sample selection. In Offinso, just number of households in each municipality was used to determine household sample sizes. Data collection took place in Nkoranza on 12-26 September 2004 and in Offinso on 27 September-2 October 2004.

The household sample included 1,808 households: 1,307 in Nkoranza and 501 in Offinso. Data from two households in Offinso were excluded from analysis as they were insured by an employer-based scheme and the Nkoranza scheme respectively. Two questionnaires were administered at selected households: a head of household questionnaire including a family roster, household characteristics (type of floor, water source, fuel source, etc.), and education and occupation information about the household head; and a treatment-seeking questionnaire for eligible family members. Eligibility for the curative module was restricted to household members who 1) had been ill or injured in the past 15 days; 2) had been hospitalized in the past one year; or 3) were women age 15-49 who had given birth in the past one year. Table 3.2 presents the total number of municipalities and households included in the survey.

**Table 3.2 Number of Municipalities and Households Included in Household Survey**

|  | Nkoranza | Offinso | Total |
|---|---|---|---|
| Number of towns (urban) | 5 | 5 | 10 |
| Number of villages (rural) | 11 | 13 | 24 |
| Number of households | 1,307 | 501 | 1,806 |

### 3.3.2   Patient Exit Interviews

The sample sizes for the patient exit interviews were also driven by the need to detect change in key variables of interest with 95 percent certainty. In this case, the comparison groups are insured and uninsured as well as outpatients and inpatients from the six districts. The desired sample size for this survey was 1,300 patients, roughly split between inpatients and outpatients.

During the enumerator training, a mapping exercise was conducted with district staff, plotting each public health facility on a map of the district, and noting the type of facility and average daily patient volume. Facilities were selected to represent the various levels of health care as well as geographic location. Sample sizes for each facility were determined based on the type of facility (inpatient or outpatient) as well as patient volume.

Approximately 100 inpatients and 100 outpatients were sought from districts without any existing insurance scheme. The exceptions were Savelugu/Nanton (Savelugu), which does not have a district hospital, and Ahanta West, which has a small hospital which discharges only 10 patients per week on average. In the districts with insurance schemes, double the number of patients was sought for those services that were covered by insurance. So, for Nkoranza, where the insurance scheme covers only inpatient services, 200 inpatients and 100 outpatients were sought. In Kwahu South where both inpatient and outpatient services are covered by the insurance scheme, 200 of each type of patient was sought. Table 3.3 shows final sample sizes by district and type of facility. Only five respondents refused or failed to complete the interview.

**Table 3.3. Number of Respondents by Type of Facility**

| District | Outpatients | | | Inpatients | | |
|---|---|---|---|---|---|---|
|  | Govt. Facility | Mission Facility | Total | Govt. Facility | Mission Facility | Total |
| Nkoranza | 75 | 25 | 100 | 0 | 200 | 200 |
| Offinso | 79 | 25 | 104 | 49 | 48 | 97 |
| Ahanta West | 50 | 0 | 50 | 50 | 0 | 50 |
| Ajumako Enyam Essiam | 84 | 15 | 99 | 100 | 0 | 100 |
| Kwahu South | 85 | 115 | 200 | 101 | 97 | 198 |
| Savelugu | 73 | 0 | 73 | 47 | 0 | 47 |
| Total | 446 | 180 | 626 | 347 | 345 | 692 |

Outpatient exit interviews were conducted with clients leaving selected health facilities in the six study districts using systematic sampling. Identified patients were intercepted at the exit of the facility and the study was explained to them to seek their consent. When patients were less than 15 years old, adult caregivers were asked to respond. Outpatient interviews were conducted from September to October 2004, and in the case of Nkoranza and Offinso, were conducted immediately after the data collectors concluded the household survey.

For the inpatient survey, a hospital nurse or DHMT staff member who attended the GHS/PHR*plus* training conducted the interviews. The nurse would contact personnel on the ward and dispensary for information about a patient's pending discharge date, as typically the last point of call for a discharged patient is the dispensary. When the discharged inpatient settled the hospital bill, the patient was directed to the nurse interviewer. The nurse explained the study and obtained the patient's consent before conducting the interview. As with the outpatient survey, if the inpatient was under 15 years old, the accompanying adult was asked to respond. Given the desired sample sizes and in some cases low patient volume, the inpatient survey took longer than the other surveys to complete. Inpatient interviews began in September and concluded in November 2004.

## 3.4    Preparation for Data Analysis

Data entry was conducted by GHS staff using ACCESS data entry screens. Double entry was used to improve the quality of and validate the data. Initial data cleaning and verification was performed by the GHS; PHR*plus* staff conducted further cleaning and variable generation. All data manipulation was performed using Intercooled Stata 8.0.

The household data were weighted by the inverse of the probability of selection at the household level, and weights were incorporated into all subsequent analyses. The patient exit data were not weighted due to the sampling methods used to obtain this sample.

A wealth index was created using key household characteristics (e.g., type of flooring, cooking fuel, potable water source) and household assets (e.g., ownership of telephone, radio, TV, car). Using principal component analysis in Stata 8.0, households were assigned aggregate scores based on household characteristics and assets. The ranked scores of households were then divided into five quintiles reflecting relative wealth: poorest, middle poor, middle, middle rich, and richest. The household and patient exit wealth indices were created separately from their respective datasets, although the same variables and methods were used to derive the indices.

## 3.5    Analytic Methods

The report presents bivariate and multivariate analyses to explain trends, differences and determinants of variables of interest. Regression analyses focus on the determinants of three key outcome variables:

- ▲  Enrollment in CBHI scheme

- ▲  Utilization of health care

- ▲  Out-of-pocket health expenditures

First, social inclusion in CBHI schemes and adverse selection was measured by analyzing enrollment in CBHI schemes. The analysis of the impact of socio-economic status upon enrollment in the schemes contributes to our understanding of the likelihood of coverage of the poor. The effects of demographic characteristics (age, sex, household size) and other risk related factors (self-perception of health status) on the likelihood of enrollment support a discussion on adverse selection in CBHI schemes.

Access to health care was measured by the use of health care services. The use of curative care (outpatient and inpatient) served as a basis for assessing access to health care in the case of illness. The use of prenatal care services, place of delivery, and assistance at delivery were used to assess access to reproductive health care among women.

Finally, household income protection was assessed by the levels of out-of-pocket expenditures and coverage by health insurance in the case of illness. Similarly, out-of-pocket expenditures and health insurance coverage in the case of hospitalization were used to assess household income protection in the case of catastrophic care. To assess household income protection in reproductive health, out-of-pocket expenditures and coverage by health insurance in the case of prenatal care and delivery were analyzed.

The analysis of access to health care and household income protection centered on the comparison between members and non-members of CBHI schemes. In addition, how access to health care among specific demographic and socio-economic groups changes as a consequence of enrollment in schemes was investigated. Stratified analyses by enrollment status of the use of health care and out-of-pocket expenditures provide a summary of differences between members and non-members. These differences were analyzed further while controlling for other factors using multivariate analysis methods. Finally, key interactions of interest (insurance status with variables such as age, sex, household wealth, etc.) were investigated based on the adjusted regressions models. All analyses were conducted using Intercooled Stata 8.0.

## 3.6    Limitations of the Study

That this study draws from two different survey methodologies (household survey and patient exit interviews) is both a strength and a potential weakness. The strength derives from the fact that each method is ideally suited to elicit certain types of information. For example, whereas the household survey is well suited to inform on factors that predict individual and household enrollment and the impact of enrollment on health care utilization, the patient exit survey is ideal for assessing the impact of insurance enrollment on out-of-pocket payments. In fact, certain analyses contained in this report were only possible to conduct with but not both datasets. For example, the regression on predictors of delivering at a health facility could only be analyzed using household data, because the patient exit survey captured only those women who presented at a facility to give birth.

The data from the two surveys differ in two additional ways. First, given the different methodologies utilized, recall bias is likely to be more pronounced in the household survey than in the patient exit survey. Ability to recall information on health care services and payments was presumed to be better for patients who had just received health care treatment, as opposed to household respondents who were asked to recall information on services received and payments made up to one year prior to the interview. Second, based on the theory that user fees present a financial barrier to seeking treatment, it would be logical to assume that respondents in the patient exit survey, by virtue of having sought treatment, represent households with higher relative wealth compared to respondents approached in the household survey, some of whom may not have sought health care.

In light of these issues, direct comparison of the results obtained through the different methodologies is not possible, although where coherent patterns in the behaviour and relations of interest between the two surveys emerge, these are noted. Results are often presented side-by-side to take advantage of the fact that similar, if not identical, questions were asked of respondents for each survey, as well as to streamline the report. However, the authors took pains to refrain from direct comparisons between the two surveys, while noting trends that corroborate the individual survey results.

# 4. Description of Study Sites

## 4.1    Summary of Study Districts

Table 4.1 summarizes basic demographic and health care data for the six study districts. All are rural districts, with population ranging from 89, 968 in Savelugu to 217,485 in Kwahu South. Population density is highest in Ahanta West (170 people per square km) and lowest in Savelugu (51 people per square km).

**Table 4.1. Health Care Provision in the Six Study Sites**

|  | Nkoranza | Offinso | Ahanta West | Ajumako Enyan Essiam | Kwahu South | Savelugu |
|---|---|---|---|---|---|---|
| District Characteristics | | | | | | |
| District population* | 128,960 | 138,676 | 95,140 | 91,965 | 217,485 | 89, 968 |
| Region | Brong Ahafo | Ashanti | Western | Central | Eastern | Northern |
| Area (square kms) | 2,300 | 1,254 | 636 | 541 | 1,876 | 1,760 |
| Health Care Infrastructure | | | | | | |
| Number of health posts | 8 | 3 | 3 | 2 | 17 | 2 |
| Number of health centers | 3 | 4 | 4 | 7 | 5 | 8 |
| Number of hospitals | 1 | 2 | 1 | 1 | 2 | 0 |
| Number of hospital beds | ** | ** | 50 | ** | 386 | 0 |
| Number of private clinics | 1 | 3 | 2 | ** | ** | 1 |
| Health Care Workers | | | | | | |
| Number of physicians | 4 | 6 | 2 | 1 | 11 | 1 |
| Number of midwives | 24 | 18 | 12 | 9 | ** | 11 |
| Number of nurses | 35 | 63 | 25 | 23 | 209 | 36 |
| Number of medical assistants | ** | ** | 4 | ** | 6 | 4 |

\* Source: 2000 Population and Housing Census

\*\* Information not available

There are no tertiary care facilities in any of the study districts, but all except Savelugu have a level-one hospital that serves the district. Savelugu has a health center that functions like a hospital, but the facility is not officially recognized as a hospital. Nurses constitute the most abundant cadre of health worker for all the districts. While reliable data are not available, each district has a variety of private providers such as chemical sellers, pharmacists, traditional healers, and, to a lesser degree, private doctors. The following box summarizes the six districts included in the study.

**Box 1. Study Sites**
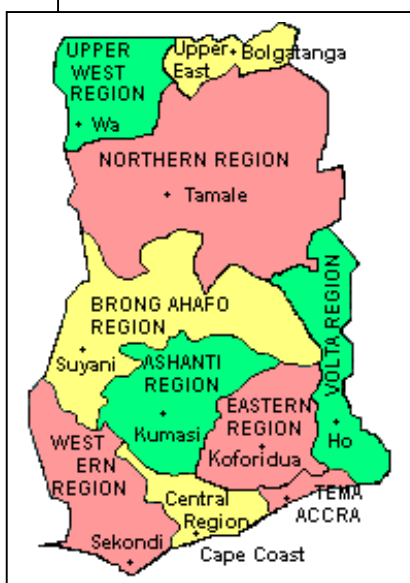


**Ahanta West**

Ahanta West, one of 13 districts in the Western Region, is located in the southwestern part of the country and borders the Atlantic Ocean. Fishing and agriculture are the main occupations; cultivation of palm fruit, coconut, maize, vegetables, and citrus is common.

**Ajumako Enyan Essiam**

Ajumako is a mostly rural and predominantly agricultural district in the Central Region. About 80–90 percent of the working population are farmers. Cash crops such as cocoa and palm fruits are cultivated; plantain, maize, and cassava are also grown on a large scale.

**Kwahu South**

Kwahu South is one of the 15 districts in the Eastern Region. The predominant occupation in the district is subsistence agriculture, which employs about 50 percent of the population. The service sector employs another 42 percent while 8 percent are employed by the industrial sector. The major agricultural crops include plantain, maize, yam, cassava, onions, tiger nuts, and tomatoes. The district is endowed with essential minerals such as gold, diamond, bauxite, manganese, and aluminum.

**Nkoranza**

Nkoranza is one of 14 administrative districts in the Brong Ahafo Region, situated in the central part of Ghana. The district is mostly rural and Nkoranza town, the district capital, has approximately 20 percent of the total district population. Agriculture is the predominant occupation; major crops include maize, yam, cassava, rice, and groundnuts. According to Ghana Demographic and Health Survey 2003, 37 percent of women and 24 percent of men in the region have no education (which compares closely with nationwide education figures).

**Offinso**

Offinso is one of 18 districts of the Ashanti Region. The leading economic activity in the district is agriculture; major crops include cocoa, plantain, cocoyam, maize, and tomato. About 28 percent of women and 16 percent of men have no education – a much lower proportion than nationwide for both men and women (DHS 2003).

**Savelugu/Nanton**

The Savelugu/Nanton district is in the Northern Region. Children under the age of 15 constitute 49 percent of the population, a share much higher than overall in Ghana. The principal economic activities are subsistence agriculture and trade. Food crops such as maize, millet, and yam are cultivated throughout the district with limited areas utilized for cultivation of cash crops such as cashews.

## 4.2    Existing CBHI Schemes

Two of the six study districts had an existing CBHI scheme at the time of the survey: Kwahu South and Nkoranza. Key characteristics of each of these schemes are described in the following sections and summarized in Table 4.2.

### 4.2.1    Okwahuman Scheme

The Okwahuman Health Insurance Scheme (Okwahuman scheme) has served district members in Kwahu South since 2001. It fully covers members' inpatient care and selected outpatient services. Although the scheme started at the mission hospital (Nkawkaw Holy Family Hospital), it now provides coverage at the district hospital as well. Primary care facilities in the district do not participate in the scheme. While complete family registration is not required, all family members are strongly encouraged to join the scheme.

In order to receive services, members must first visit the outpatient department at either of the hospitals for initial assessment and treatment. If the cost of outpatient services, including drugs and x-rays, exceeds 200,000 cedis, the scheme then pays for the services. If the member is admitted as an inpatient from the outpatient department, any costs incurred for outpatient services are refunded.

In September 2004, scheme members chose to join the NHIS and continue operations within the district. Consequently, at the time of the survey, the scheme was in process of adapting its structure and policies to meet NHIS guidelines.

### 4.2.2    Nkoranza Scheme

After implementation of the "cash and carry" system, many community members delayed seeking medical attention because of inability to pay for services. As no district hospital exists in Nkoranza, many residents sought care at St. Theresa's hospital, a mission facility. However, many patients were unable to pay for services received, resulting in depletion of the hospital poor and sick fund administered by the Sunyani Diocesan Catholic Church. To protect the fund and encourage preventative care and early treatment, the Nkoranza Health Insurance Scheme (Nkoranza scheme) was initiated in 1992. As such, it was one of the first CBHI schemes. The scheme originally received funds to cover income shortfalls for the first three years from MEMISA, a Dutch faith-based medical aid organization. The scheme later received funding and technical assistance from DANIDA (the Danish International Development Agency), the U.S. Agency for International Development/PHR*plus*, and the World Health Organization.

The Nkoranza scheme provided membership to those with pre-existing conditions; however, all family members were required to enroll. Scheme benefits included full reimbursement for inpatient services at St. Theresa's hospital and refunds for the cost of prescription drugs purchased outside when the drugs were not available in the hospital. No outpatient care was covered. It should be noted that the Nkoranza scheme did not cover normal deliveries, nor complications associated with self-induced or criminal abortions.

When the NHIS began to be implemented, the Nkoranza scheme was faced with transforming itself into the district-wide MHO scheme or ceasing to exist. The district assembly decided to set up a scheme more compatible with NHIS guidelines by establishing a new district-wide MHO. Thus the

private Nkoranza scheme ended its operations in October 2004, just after the survey was conducted. A district-wide MHO was initiated in 2005 in compliance with NHIS guidelines.

**Table 4.2 Characteristics of Existing CBHI Schemes in the Study Districts**

| Name of scheme | Nkoranza Community Health Insurance Scheme | Okwahuman Health Insurance Scheme |
|---|---|---|
| Year initiated | 1992 | 2001 |
| Type of community financing scheme | Community-owned | Community-owned |
| Participating facilities | St. Theresa's Hospital | Nkawkaw Hospital (mission) Kwahu Government Hospital |
| Enrollment policies | Entire family registration is required | Family registration is encouraged |
| Level and frequency of contributions | New member premium of 30,000 cedis per person per annum<br><br>Renewal premium of 25,000 cedis per person per annum | Premium of 40,000 cedis per person per annum<br><br>Registration fee of 8,000 cedis. |
| Admission requirements | No pre-enrollment tests | No pre-enrollment tests |
| Benefit package structures | Payment of total cost of inpatient care<br><br>Payment for the treatment of snake and dog bites<br><br>Members pay for outpatient services until they are declared inpatients<br><br>Normal deliveries not covered, although any deliveries requiring hospitalization (including caesarean) are covered<br><br>Maximum payment of 1,000,000 cedis to cover referral to another hospital | Payment of total cost of inpatient care<br><br>Payment for treatment of dog, cat, and snake bites<br><br>Members pay for outpatient services until they are declared inpatients<br><br>Normal deliveries not covered, although any deliveries requiring hospitalization (including caesarean) are covered<br><br>Outpatient bills of 200,000 cedis or more for one visit are covered |
| Reimbursement policies | Refund for purchase of prescribed drugs not available in the hospital | Outpatient payments refunded when admitted as inpatients |

## 4.3    Establishing District-wide MHOs in Other Study Districts

At the time of the baseline survey, all four other districts (Ahanta West, Ajumako Enyan Essiam [Ajumako], Savelugu, and Offinso) had progressed by varying degrees toward establishing a district-wide MHOs. All four had shown interest in initiating MHOs prior to the 2003 HI Act. However, none had actually done so, and instead were adapting their previous plans in light of the HI Act. At the time of the baseline survey, most were engaged in recruiting staff to operate the district scheme and were in the process of conducting a household census and compiling a community register, with the intention of launching the schemes shortly thereafter.

Three of the districts were clear that they would comply with the benefit package and premiums (72,000 cedis per adult) specified in the Legislative Instrument associated with the HI Act. However Savelugu signaled that it intended to charge lower premiums, citing that the local population could not afford a premium of more than 25,000 cedis per adult.

# 5. Description of Survey Samples

## 5.1 Household Survey

Table 5.1 presents information on household and head of household characteristics for the population-based survey. The sample characteristics are compared with results from the Ghana 2003 Demographic and Health Survey.

**Table 5.1. Household Characteristics – Household Survey**

|  | Nkoranza | Offinso | Entire Sample | DHS 2003 |
|---|---|---|---|---|
| N | 1,307 | 499 | 1,806 | 6,251 |
| **Household characteristics** |  |  |  |  |
| Percent with electricity | 50.3 | 44.1 | 48.5 | 48.3 |
| Primary cooking fuel |  |  |  |  |
|   Charcoal | 33.0 | 15.7 | 27.8 | 30.3 |
|   Firewood | 65.8 | 83.4 | 71.1 | 59.0 |
|   Other | 1.2 | 0.9 | 1.1 | 10.7 |
| Main source of drinking water |  |  |  |  |
|   Public tap | 56.6 | 54.2 | 55.9 | 22.8 |
|   Borehole | 32.0 | 32.8 | 32.2 | 39.3 |
|   River/surface | 8.5 | 8.8 | 8.6 | 17.8 |
|   Other | 2.9 | 4.3 | 3.3 | 20.1 |
| Primary sanitation facility |  |  |  |  |
|   Pit latrine | 50.6 | 43.1 | 48.3 | 41.5 |
|   VIP latrine | 32.8 | 50.2 | 38.0 | 26.0 |
|   Bush/field | 13.8 | 5.8 | 11.4 | 19.6 |
|   Other | 2.9 | 1.0 | 2.3 | 12.9 |
| **Household head characteristics** |  |  |  |  |
| Highest level of education* |  |  |  |  |
|   No education | 38.7 | 37.0 | 38.2 | 17.6 |
|   Primary/JSS | 24.7 | 54.0 | 33.5 | 59.2 |
|   Secondary or higher | 36.6 | 9.0 | 28.3 | 23.2 |
| Current occupation |  |  |  |  |
|   Unemployed | 8.7 | 6.7 | 8.1 |  |
|   Farmer/fisherman | 60.4 | 65.7 | 62.0 |  |
|   Government | 6.2 | 3.7 | 5.5 | N/A** |
|   Artisan | 8.8 | 6.2 | 8.0 |  |
|   Trader | 11.9 | 14.6 | 12.7 |  |
|   Other | 3.9 | 3.1 | 3.7 |  |
| Percent of households headed by female | 36.8 | 30.7 | 35.0 | 33.8 |
| Percent of households in: |  |  |  |  |
|   Poorest quintile | 19.2 | 22.7 | 20.0 | 20.0 |
|   Poor-middle quintile | 20.0 | 19.8 | 20.0 | 20.0 |
|   Middle quintile | 19.0 | 22.1 | 20.0 | 20.0 |
|   Middle-rich quintile | 20.6 | 19.1 | 20.0 | 20.0 |
|   Richest quintile | 21.2 | 16.4 | 20.0 | 20.0 |
| Mean household size | 5.2 | 5.6 | 5.4 | 4.0 |

\* DHS does not report level of education of head of household, so the DHS education breakdown for men is presented here for comparison.

\*\* The occupation categories used by DHS are different and prevent direct comparison.

In comparing characteristics between the two study districts, it appears they have a broadly similar profile. While there is some variation between Nkoranza and Offinso households in terms of proportion with electricity, type of cooking fuel, and sanitation facilities, these differences are not significant. There is a higher proportion of female-headed households in Nkoranza than in Offinso, although the difference is not significant. Also, while it appears that the Offinso households are disproportionately distributed to the poorest quintile, the differences with regards to quintiles are not significant. The only significant differences between the two districts are household size and level of education of household head. Nkoranza households have an average of 5.2 family members, as compared to 5.6 family members in Offinso. Heads of households in Nkoranza have much higher rates of secondary education than their counterparts in Offinso, although the proportion with no formal education is the same. The occupation distributions are very similar between the two districts, and reflect the agrarian nature of the study areas. Although Offinso was chosen to represent a relatively less-deprived district, households in this district appear to be more deprived than households in Nkoranza.

The Ghana DHS 2003 offers the opportunity to compare and validate data collected in this survey. Housing characteristics, in terms of cooking fuel, are similar between the samples. However, data from the present survey indicate that households are better off with regards to sanitation facilities and access to safe water supply than households in the Ghana DHS sample. This may be due to different sampling methodologies, as the DHS was more likely to include very remote rural villages in their sample. The proportion of households headed by women is approximately the same between the present survey and the Ghana DHS 2003 (35.0 percent vs. 33.8 percent, respectively). Mean household size is higher in the present sample than in the 2003 DHS. This may be explained by the fact that the Greater Accra Metropolitan Area, which has a large population and smaller than average family size, is not included in the present survey, whereas it was in the DHS.

Household heads were asked if any member of the household had been ill within the past two weeks and also if any had been hospitalized or given birth within the past year (Table 5.2). In the 1,806 households surveyed there were 9,553 household members. Slightly less than 5 percent of the population reported illness within the past two weeks and nearly 3 percent of the population was hospitalized in the past year. About a quarter (25.5 percent) of the household members were women between the ages of 15-49. Just over 12 percent of women in this age group had given birth in the past year. No significant differences in morbidity or fertility levels between districts were detected.

**Table: 5.2. Household Members Reporting Recent Illness, Delivery or Hospitalization in the Past Year – Household Survey**

| Reported Health Status | Nkoranza | Offinso | Total |
|---|---|---|---|
| Proportion of individuals who reported illness or injury in past 15 days | 4.6 | 4.4 | 4.5 |
| Proportion of individuals that were hospitalized in the past 12 months | 2.3 | 3.2 | 2.6 |
| Proportion of women 15-49 that gave birth in the past 12 months | 11.4 | 14.0 | 12.2 |

Table 5.3 shows the burden of disease for household members who had been recently ill or hospitalized in the past year. For recent illness, aches and pains and malaria were the predominant afflictions, cited by 38 percent and 36 percent of respondents, respectively. Respiratory problems, diarrhea, and injury were cited with much less frequency. Offinso respondents were more likely to cite aches and pains and diarrhoea, whereas Nkoranza respondents more frequently cited malaria.

**Table 5.3. Distribution of Illness, Reason for Hospitalization, and Maternity Experiences – Household Survey**

| | Nkoranza | Offinso | Entire Sample |
|---|---|---|---|
| **Recent Illness or Injury** | | | |
| N | 287 | 128 | 415 |
| Aches and pains | 34.9 | 44.8 | 37.9 |
| Malaria | 39.3 | 28.7 | 36.0 |
| Respiratory | 7.0 | 5.5 | 6.6 |
| Diarrhoea | 4.5 | 10.5 | 6.4 |
| Injury | 3.5 | 4.2 | 3.7 |
| Other | 10.8 | 6.4 | 9.4 |
| **Reason for Hospitalization** | | | |
| N | 119 | 84 | 203 |
| Malaria | 29.3 | 29.2 | 29.3 |
| Reproductive health* | 11.9 | 10.3 | 11.2 |
| Surgery | 15.5 | 2.7 | 10.2 |
| Respiratory | 11.1 | 5.9 | 9.0 |
| Typhoid/Enteric fever | 4.6 | 16.7 | 8.5 |
| Anemia | 1.9 | 12.6 | 6.3 |
| Injury | 4.1 | 7.7 | 5.6 |
| Diarrhoea | 3.0 | 6.0 | 4.2 |
| Other | 18.8 | 8.9 | 14.7 |
| **Maternity Care Experience** | | | |
| N | 209 | 91 | 300 |
| Prenatal care | | | |
| 1-3 prenatal visits | 11.7 | 20.6 | 14.8 |
| 4-5 prenatal visits | 34.5 | 27.2 | 32.0 |
| 6+ prenatal visits | 53.8 | 52.2 | 53.2 |
| Type of delivery | | | |
| Normal | 87.7 | 96.9 | 90.9 |
| Caesarean | 12.3 | 3.1 | 9.1 |

Among respondents who had been hospitalized in the past year, malaria was the predominant reason, with 29 percent of respondents in each district attributing their admission to this illness. Other reasons for hospitalization, such as reproductive health (excluding deliveries), surgery, respiratory problems, typhoid or enteric fever, and anemia, were cited with some frequency. Differences emerge between the districts, in that Nkoranza respondents were significantly more likely to be hospitalized for surgery and respiratory problems, whereas Offinso respondents suffered higher rates of typhoid or enteric fever and anemia.

Receipt of prenatal care was high among women who had recently given birth. Nearly all women (98 percent) had received at least one prenatal consultation. Although the standard of care in Ghana is four prenatal visits, the majority of women in the sample received at least six prenatal consultations. The vast majority of women had a normal delivery (91 percent), although a significantly higher proportion of women in Nkoranza had a caesarean delivery compared to women in Offinso.

## 5.2    Patient Exit Survey

The patient exit surveys were conducted in Nkoranza and Offinso as well as the four additional districts. Table 5.4 presents background characteristics on survey respondents. Here, respondents may be either the patient, or in the case of a child under the age of 15, the patient's caregiver. Of the 1,318 respondents, 63 percent were patients themselves and 37 percent were responding on behalf of dependents (children under the age of 15). Subsequent tables (5.5 and 5.6) present demographic and morbidity data specifically for the patient.

**Table 5.4. Respondent\* Characteristics by District – Patient Exit Survey**

|  |  | Nkoranza | Offinso | Ahanta West | Ajumako | Kwahu South | Savelugu | Entire Sample |
|---|---|---|---|---|---|---|---|---|
|  | N | 300 | 201 | 100 | 199 | 398 | 120 | 1,318 |
| Sex |  |  |  |  |  |  |  |  |
|  | Male | 24.3 | 22.4 | 16.0 | 29.2 | 26.2 | 28.3 | 25.0 |
|  | Female | 75.8 | 77.6 | 84.0 | 70.9 | 73.8 | 71.7 | 75.0 |
| Age |  |  |  |  |  |  |  |  |
|  | <24 | 23.8 | 24.1 | 34.4 | 20.2 | 22.3 | 25.0 | 23.7 |
|  | 25-49 | 58.9 | 61.8 | 59.1 | 53.4 | 51.4 | 63.9 | 56.1 |
|  | 50 or above | 17.4 | 14.1 | 6.5 | 26.4 | 26.3 | 11.1 | 20.2 |
| Level of Education |  |  |  |  |  |  |  |  |
|  | Never attended | 41.3 | 35.8 | 34.0 | 24.6 | 25.4 | 75.8 | 35.7 |
|  | Primary/JSS | 44.3 | 52.7 | 56.0 | 55.8 | 50.5 | 11.7 | 47.1 |
|  | Secondary or higher | 14.4 | 11.5 | 10.0 | 19.6 | 24.1 | 12.5 | 17.2 |
| Employment |  |  |  |  |  |  |  |  |
|  | Not employed | 10.0 | 12.4 | 9.0 | 9.6 | 10.0 | 6.7 | 9.9 |
|  | Farming or fishing | 44.3 | 53.2 | 28.0 | 31.2 | 25.6 | 33.3 | 35.8 |
|  | Artisan | 12.0 | 5.5 | 17.0 | 15.6 | 17.8 | 5.8 | 13.13 |
|  | Trade | 17.3 | 19.4 | 28.0 | 25.6 | 27.6 | 20.8 | 23.14 |
|  | Government | 7.7 | 2.0 | 6.0 | 8.5 | 10.3 | 3.3 | 7.2 |
|  | Other | 8.7 | 7.5 | 12.0 | 9.5 | 8.7 | 30.1 | 10.8 |
| Household wealth quintile\*\* |  |  |  |  |  |  |  |  |
|  | Poorest | 28.7 | 22.9 | 24.0 | 5.5 | 13.6 | 35.8 | 20.0 |
|  | Poor-middle | 14.0 | 29.3 | 22.0 | 21.6 | 17.1 | 25.0 | 20.0 |
|  | Middle | 12.0 | 25.4 | 26.0 | 29.2 | 17.6 | 19.2 | 20.0 |
|  | Middle-rich | 19.3 | 13.9 | 20.0 | 26.1 | 22.9 | 11.7 | 20.0 |
|  | Richest | 26.0 | 8.5 | 8.0 | 17.6 | 28.9 | 8.3 | 20.0 |
| Average size of household |  | 5.9 | 6.1 | 5.5 | 5.2 | 5.0 | 16.5 | 6.5\*\*\* |

\* Respondents are either the patient or the caregiver of a patient (usually in cases where the patient is a child under 15 years).

\*\* Asset indices for the exit survey were constructed using the same variables and process as in the household survey. However separate quintiles were constructed for the exit interview data set (covering all six districts).

\*\*\* Average household size for the sample is 5.5 when Savelugu observations are excluded.

As Table 5.4 shows, the characteristics of respondents in the district of Savelugu are clearly quite different to the other five districts, with lower levels of education and much larger household size, and a larger proportion of households in the poorest quintiles. As with household survey results, Offinso appears more deprived than Nkoranza. Ajumako does not seem as deprived as Nkoranza and Savelugu, the two other districts that were chosen to represent relatively deprived districts.

Table 5.5 shows the sex and age distribution of patients who were interviewed during the exit interview.

**Table 5.5. Patient Characteristics – Patient Exit Survey**

|  |  | Nkoranza | Offinso | Ahanta West | Ajumako | Kwahu South | Savelugu | Entire Sample |
|---|---|---|---|---|---|---|---|---|
|  | N | 300 | 201 | 100 | 199 | 398 | 120 | 1,318 |
| Sex |  |  |  |  |  |  |  |  |
|  | Male | 36.7 | 33.3 | 33.0 | 41.2 | 38.7 | 45.8 | 38.0 |
|  | Female | 63.0 | 66.7 | 67.0 | 58.8 | 61.3 | 54.2 | 62.0 |
| Age |  |  |  |  |  |  |  |  |
|  | Under 5 | 20.0 | 20.9 | 25.0 | 14.1 | 18.1 | 54.2 | 22.2 |
|  | 5-14 | 9.0 | 11.0 | 8.0 | 16.6 | 10.1 | 10.0 | 10.8 |
|  | 15-24 | 20.0 | 17.9 | 25.0 | 14.6 | 17.1 | 8.3 | 17.3 |
|  | 25-49 | 31.0 | 34.8 | 32.0 | 28.1 | 30.4 | 12.5 | 29.4 |
|  | 50 or above | 15.8 | 11.9 | 7.2 | 24.7 | 22.8 | 12.1 | 17.8 |
|  | Unknown | 4.2 | 3.5 | 2.8 | 1.9 | 1.5 | 2.9 | 2.5 |

Much like the ill respondents in the household survey, the leading type of illness or injury reported by patients in the exit survey is malaria, followed by aches and pains, and respiratory conditions. Table 5.6 presents the burden of disease for all patient exit respondents across the six study districts.

**Table 5.6. Distribution of Illness/Injury among Patients by District – Patient Exit Survey**

|  |  | Nkoranza | Offinso | Ahanta West | Ajumako | Kwahu South | Savelugu | Entire Sample |
|---|---|---|---|---|---|---|---|---|
|  | N | 300 | 201 | 100 | 199 | 398 | 120 | 1,318 |
| Malaria |  | 24.7 | 25.4 | 34.0 | 36.2 | 27.7 | 34.2 | 29.0 |
| Aches and pains |  | 14.0 | 20.9 | 18.0 | 18.1 | 19.1 | 6.6 | 16.9 |
| Delivery |  | 12.0 | 11.4 | 11.0 | 3.0 | 10.1 | 1.7 | 9.0 |
| Diarrhoea |  | 4.3 | 6.5 | 5.0 | 10.0 | 6.3 | 8.3 | 6.5 |
| Respiratory |  | 10.0 | 7.9 | 4.0 | 10.6 | 5.6 | 15.0 | 8.4 |
| Prenatal |  | 2.3 | 8.5 | 12.0 | 2.5 | 3.8 | 0.8 | 4.3 |
| Injury |  | 3.7 | 1.9 | 2.0 | 5.0 | 5.6 | 4.2 | 4.1 |
| Anemia |  | 3.3 | 1.5 | 5.0 | 2.5 | 3.3 | 5.0 | 3.2 |
| Other |  | 25.7 | 15.9 | 8.9 | 12.0 | 18.8 | 24.2 | 18.6 |

# 6.  Enrollment in CBHI Schemes

This report aims to answer two important questions: Who enrolls in a community health insurance scheme? and What are the key predictors of enrollment? This section of the report answers these questions, starting with predictors of enrollment at the household level, followed by predictors of enrollment at the individual level.

## 6.1  Household Characteristics by Insurance Status

Table 6.1 presents data from the household survey on key characteristics by insurance enrollment. Throughout the report, insurance status of the household head serves as the proxy for whether or not a household is considered enrolled in an insurance scheme. Although the sampling design for the Nkoranza household survey called for approximately equal samples of insured and uninsured households, included in the uninsured group are households that were formerly insured, which reflects approximately one quarter of the households sampled. Households that were never enrolled in the Nkoranza scheme are significantly smaller than former or currently enrolled households (p=.0002), suggesting that larger families may be more likely to join the insurance scheme.

Comparing across the four groups, nearly 42 percent of currently insured households are headed by women – a higher proportion than for any other group. Never enrolled households are least likely to be headed by women, and most likely to have uneducated household heads. Agriculture is the predominant occupation of household heads, supporting the fact that the study districts are predominantly rural. Insured households are disproportionately allocated to the higher wealth quintiles, as compared to uninsured households. In fact, wealth is the one category in which formerly enrolled households are most similar to never-enrolled households (i.e., they appear to be poorer), rather than to currently enrolled households. This finding suggests the potential role that wealth plays in insurance membership (and hints that a decline in wealth status may lead to discontinuation of membership).

The majority of currently enrolled households are long-standing members of the insurance scheme. Among all current members, 82 percent are up to date on their premiums (i.e., have paid premiums every year since joining). Two-thirds (66 percent) of current members joined the scheme when it originated in 1992. Among these original members, 88 percent have paid their premiums every year.

About half (46 percent) of currently uninsured Nkoranza households had previously been insured with the Nkoranza Scheme. Failure to continue membership was attributed mostly to expensive premiums (79 percent) and not being home at time of registration (14 percent). Among the Nkoranza households that have never been insured, the primary reason for not joining the Nkoranza scheme was expensive premiums (59 percent), followed by not being home at time of registration (13 percent) and no perceived need (10 percent).

**Table 6.1. Selected Characteristics by Household Enrollment Status: Nkoranza and Offinso – Household Survey**

| | Nkoranza | | | Offinso |
|---|---|---|---|---|
| | **Currently enrolled** | **Formerly enrolled** | **Never enrolled** | **(Uninsured)** |
| N | 620 | 324 | 363 | 499 |
| Average size of household | 5.4 | 5.4 | 4.8 | 5.6 |
| Proportion of households headed by female | 41.8 | 32.3 | 23.4 | 30.7 |
| Highest level of education: | | | | |
|   No education | 36.8 | 37.8 | 45.9 | 37.0 |
|   Primary/JSS | 23.8 | 27.7 | 25.2 | 54.0 |
|   Secondary or higher | 39.4 | 34.5 | 28.9 | 9.0 |
| Current occupation: | | | | |
|   Unemployed | 8.7 | 9.2 | 8.4 | 6.7 |
|   Agriculture | 59.0 | 68.6 | 58.5 | 65.7 |
|   Government | 7.3 | 2.1 | 6.3 | 3.7 |
|   Artisan | 9.9 | 5.9 | 7.6 | 6.2 |
|   Trader | 12.9 | 10.2 | 9.9 | 14.6 |
|   Other | 2.4 | 4.0 | 9.2 | 3.1 |
| Proportion of households belonging to: | | | | |
|   Poorest quintile | 15.6 | 24.6 | 26.7 | 22.7 |
|   Poor-middle quintile | 19.1 | 21.3 | 22.1 | 19.8 |
|   Middle quintile | 17.9 | 25.4 | 16.9 | 22.0 |
|   Middle-rich quintile | 22.8 | 16.3 | 17.0 | 19.1 |
|   Richest quintile | 24.6 | 12.4 | 17.3 | 16.4 |

## 6.2    Predictors of Household Enrollment in Health Insurance

Table 6.2 presents regression results on the determinants of household enrollment. The results are restricted to the household survey, as the patient exit survey did not capture data on the household head. The results show that age, gender, secondary education and occupation of household head predict insurance enrollment. Households headed by adults over 50 years are 2.2 times more likely to enroll than are households headed by younger adults. Households headed by women are also 2.2 times as likely to enroll as male-headed households. Household heads with secondary or greater education are 1.7 times as likely to join an insurance scheme than those with no education. Employed household heads are about two times more like to enroll than unemployed heads. While the odds of being enrolled increase with wealth, the difference in comparison to the poorest wealth group is not significant. This is surprising, as other findings, such as the apparent correlation between wealth and insurance membership presented in Table 6.1, suggest that wealth is an important determinant. It is important to note that while the findings are not significant, wealth does have a gradient effect, in that, with each increasing wealth quintile, the likelihood of enrolling increases. One possible reason for wealth not producing a significant effect in this regression is that household head characteristics, such as age, gender, education, and occupation may be more important predictors of enrollment.

**Table 6.2. Predictors of Household Enrollment\* in CBHI – Nkoranza Household Survey**

| Household and Head of Household Characteristics | Odds ratio | Confidence interval | P-value |
|---|---|---|---|
| N=1,307 | | | |
| HH size | 1.06 | 0.98-1.15 | 0.125 |
| Age of HH head | | | |
| Less than 50 (R) | 1.00 | | |
| 50+ | 2.22 | 1.45-3.40 | 0.001 |
| Sex of HH head | | | |
| Male (R) | 1.00 | | |
| Female | 2.17 | 1.84-2.57 | 0.000 |
| Education of HH head | | | |
| No education (R) | 1.00 | | |
| Primary | 1.27 | 0.76-2.13 | 0.354 |
| Secondary or higher | 1.68 | 1.28-2.21 | 0.001 |
| Occupation of HH head | | | |
| No job (R) | 1.00 | | |
| Agriculture | 1.75 | 1.08-2.81 | 0.023 |
| Other | 2.05 | 1.51-2.78 | 0.000 |
| HH wealth | | | |
| Poorest (R) | 1.00 | | |
| Poor middle | 1.28 | 0.62-2.65 | 0.487 |
| Middle | 1.27 | 0.57-2.84 | 0.551 |
| Middle rich | 2.39 | 0.74-7.72 | 0.142 |
| Richest | 2.86 | 0.57-14.48 | 0.196 |
| Place of residence | | | |
| Rural (R) | 1.00 | | |
| Urban | 0.79 | 0.16-3.89 | 0.769 |

\* A household is considered enrolled in a CBHI scheme if the head of the household is enrolled.

## 6.3    Individual Enrollment in Health Insurance

Certain age and gender groups, such as older individuals and women of reproductive age, might be more likely to require health services, and as such, individuals in these groups might be more likely to enroll in an insurance scheme, a practice known as adverse selection. Both the Nkoranza and the Okwahuman insurance schemes try to prevent adverse selection by encouraging or even requiring that all family members join the scheme. However, as Table 6.3 depicts, this policy is not always adhered to in Nkoranza. The household data reveal that there is a significantly higher proportion of elderly individuals in Nkoranza that are insured (p=.0000). In addition, women of reproductive age are also significantly more likely to be insured than uninsured (p=.0285). The reverse is true for children under 5 – young children are significantly less likely to be insured (p=.0000). These results suggest evidence of adverse selection in Nkoranza, despite the insurance scheme's attempt to prevent this practice.

**Table 6.3. Age and Gender Distribution of Household Members by Insurance Membership and District of Residence – Household Survey**

|  | Nkoranza | | Offinso |
|---|---|---|---|
|  | Insured | Uninsured | Uninsured |
| N= 9,466 | 3,108 | 3,539 | 2,819 |
| Proportion under 5 | 12.3 | 17.0 | 15.4 |
| Proportion 5-14 | 26.0 | 28.7 | 27.6 |
| Proportion women aged 15-49 | 27.5 | 24.9 | 25.4 |
| Proportion men aged 15-49 | 18.8 | 20.2 | 20.4 |
| Proportion 50 and older | 15.4 | 9.2 | 11.2 |

Note: Excludes 87 individuals of unknown age.

## 6.4    Predictors of Individual Enrollment in Insurance

In order to confirm that women and the elderly are more likely to enroll in an insurance scheme, as well as to examine other predictors of enrollment, a regression analysis was conducted. Table 6.4 presents the regression findings for the household and patient exit surveys. While the household data determine predictors of enrollment among all household members included in the household roster, the patient exit data draw from the sample of survey respondents only. Among household survey data, predictors of enrollment are age and gender. Increasing age significantly predicts enrollment, particularly for individuals older than 25, and women are more likely to enroll. Household characteristics that predict individual enrollment include household head factors: female sex, older age (50+), secondary education and employment. In addition – and unlike the determinants of household enrollment – wealth predicts insurance enrollment at the individual level. Respondents in the top two wealth quintiles were significantly more likely to enroll. The different findings related to wealth may be a result of differences in sample size, as well as differences in the relative contribution of individual covariants, such as age and gender of the household head. Other possible explanations include insured households are relatively larger and wealthier than uninsured households.

Patient exit findings reveal that older adults (50+) are significantly more likely to enroll, whereas adults between 25-40 were significantly less likely to enroll. Patients with secondary education and those residing in the richest households were also significantly more likely to enroll, similar to the household survey results.

**Table 6.4. Predictors of Individual Enrollment in CBHI – Nkoranza and Kwahu South**

| Individual and HH characteristics | Household Sampl Nkoranza District (n=6,644) | | | Exit Sample Nkoranza and Kwahu South Districts (n=674) | | |
|---|---|---|---|---|---|---|
| | Odds ratio | CI | P-value | Odds ratio | CI | P-value |
| Age of individual | | | | | | |
| 0-4 (R) | 1.00 | | | 1.00 | | |
| 5-14 | 1.20 | 1.01-1.42 | 0.036 | 1.44 | 0.75-2.76 | 0.278 |
| 15-24 | 1.21 | 0.99-1.48 | 0.061 | 1.06 | 0.59-1.88 | 0.852 |
| 25-49 | 1.27 | 1.07-1.51 | 0.005 | 0.84 | 1.13-3.01 | 0.015 |
| 50+ | 1.90 | 1.51-2.39 | 0.000 | 3.69 | 2.10-6.49 | 0.000 |
| Sex of individual | | | | | | |
| Male (R) | 1.00 | | | 1.00 | | |
| Female | 1.17 | 1.05-1.31 | 0.004 | 0.98 | 0.69-1.40 | 0.919 |
| Education* | | | | | | |
| No education (R) | 1.00 | | | 1.00 | | |
| Primary | 0.98 | 0.68-1.41 | 0.893 | 1.36 | 0.90-2.05 | 0.142 |
| Secondary or higher | 1.46 | 1.02-2.10 | 0.038 | 1.73 | 1.00-3.01 | 0.051 |
| Occupation | | | | | | |
| No job (R) | 1.00 | | | 1.00 | | |
| Agriculture | 2.15 | 1.42-3.24 | 0.000 | 1.03 | 0.54-1.96 | 0.929 |
| Other job | 2.26 | 1.41-3.61 | 0.001 | 0.72 | 0.39-1.32 | 0.281 |
| HH wealth | | | | | | |
| Poorest (R) | 1.00 | | | 1.00 | | |
| Poor middle | 1.42 | 0.90-2.23 | 0.130 | 0.87 | 0.48-1.58 | 0.656 |
| Middle | 1.46 | 0.94-2.28 | 0.093 | 0.96 | 0.52-1.78 | 0.907 |
| Middle rich | 2.98 | 1.87-4.73 | 0.000 | 1.86 | 1.05-3.31 | 0.034 |
| Richest | 4.03 | 2.41-6.73 | 0.000 | 1.94 | 1.09-3.44 | 0.023 |
| HH size | 0.99 | 0.93-1.04 | 0.667 | 0.99 | 0.94-1.05 | 0.837 |
| Sex of HH head | | | | | | |
| Male (R) | 1.00 | | | | | |
| Female | 1.64 | 1.21-2.22 | 0.001 | | | |
| Age of HH head | | | | | | |
| Less than 50 (R) | 1.00 | | | | | |
| 50+ | 1.59 | 1.16-2.19 | 0.004 | | | |
| Place of residence | | | | | | |
| Rural (R) | 1.00 | | | | | |
| Urban | 0.86 | 0.64-1.14 | 0.284 | | | |

*For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

## 6.5    Summary: Enrollment in Health Insurance Schemes

Bivariate results from the household survey indicate that insured households are significantly larger than uninsured households. Almost half (42 percent) of insured households are headed by women, a significantly higher proportion than for formerly or never-insured households. Insured households also appear to be wealthier than the other two groups. Among currently insured households, 82 percent have paid premiums every year since joining. Nearly half of uninsured Nkoranza households were formerly insured, citing unaffordable premiums as the reason for ending their enrollment.

Additional analysis explored the factors that predict insurance enrollment at the household level. The insurance status of the head of household serves as a proxy for household enrollment. Several factors predict household enrollment, with the following characteristics increasing the odds of enrollment by 2: households headed by older individuals, by women, those with secondary or greater education, and those who are employed. The odds of household enrollment increase incrementally with wealth, although the finding is not significant.

Focusing on factors that predict individual enrollment, analysis of the household data indicates that a higher proportion of elderly individuals are insured, as are women of reproductive age, whereas young children are less likely to be insured. These results suggest a moderate level of adverse selection, despite the Nkoranza policy that all household members enroll in the scheme. Regression results largely validate these findings. For both the household and patient exit surveys, age, education and wealth all predict individual insurance membership. Respondents from the two richest wealth quintiles were significantly more likely to be insured, for both the household survey and the patient exit survey. Additionally, the household data found that women are more likely than men to enroll.

# 7. Effects of Enrollment on Utilization and Affordability of Outpatient Care

## 7.1    Treatment Seeking Behavior among Recently Ill Respondents

This section seeks to examine patterns in treatment seeking among insured and uninsured individuals who were recently ill or injured. Of particular interest is whether enrollment in a community-based health insurance scheme increases access to modern (formal) health care services or affects out-of-pocket expenditures. Given that that the CBHI schemes included in this study only minimally cover outpatient services, strong effects are not expected. Analyses for this section include severity of illness/injury, informal care seeking behavior and expenditures, and with regards to formal care seeking, service intensity, receipt of drugs and payments for drugs, determinants of out-of-pocket health care payments, and affordability of health care services. When possible, similar analyses are presented for the household and patient exit data. However, due to the different methodologies used to obtain the samples (i.e., population based household survey vs. patient exit surveys), certain analyses are restricted to one sample. For example, given that all the respondents in the patient exit survey sought treatment at a health facility, it was not possible to determine predictors of formal care seeking for this group.

Bivariate analyses compare health care utilization and expenditures results across three groups. For the household survey, these groups are: 1) Nkoranza insured; 2) Nkoranza uninsured; and 3) Offinso uninsured. For the patient exit data these groups are: 1) Nkoranza/Kwahu South insured; 2) Nkoranza/Kwahu South uninsured; and 3) Savelugu/Ahanta West/Ajumaku/Offinso uninsured. Multivariate analyses typically include insurance status as one of the covariants, in addition to individual characteristics (age, sex, severity of illness) and household characteristics (wealth, age, and gender of household head).

Household members who had recently been ill or injured and outpatients leaving one of the sampled health facilities were asked about the onset and severity of their illness or injury, as well as the timing and sequence of care seeking. Table 7.1 summarizes treatment seeking behavior of recently ill or injured respondents from both surveys.

**Table 7.1. Curative Health Seeking among Recently Ill or Injured Respondents**

| | Household | | | Patient Exit | | |
|---|---|---|---|---|---|---|
| | **Insured Nkoranza (%)** | **Uninsured Nkoranza (%)** | **Uninsured Offinso (%)** | **Insured Nkoranza and Kwahu South (%)** | **Uninsured Nkoranza and Kwahu South (%)** | **Uninsured All other districts (%)** |
| | **(n=146)** | **(n=141)** | **(n=128)** | **(n=103)** | **(n=197)** | **(n=326)** |
| Self-perception of severity of illness | | | | | | |
|   Not serious | 19.1 | 29.6 | 28.0 | 39.4 | 20.9 | 25.1 |
|   Serious | 44.6 | 41.8 | 50.1 | 48.5 | 67.4 | 60.7 |
|   Very serious | 36.3 | 28.6 | 21.9 | 12.1 | 11.6 | 13.4 |
| Used medication at home | 53.7 | 61.0 | 39.7 | 37.4 | 47.4 | 36.8 |
| Sought care from informal providers | 68.3 | 67.4 | 75.6 | 34.3 | 37.8 | 47.0 |
| Sought care at a modern health care provider | 56.6 | 43.1 | 31.8 | -- | -- | -- |
| | (n=79) | (n=58) | (n=40) | | | |
| Timing of formal care after onset of illness | | | | | | |
|   1-3 days | 78.5 | 73.0 | 64.3 | 32.3 | 46.6 | 54.3 |
|   4-6 days | 12.5 | 11.3 | 19.7 | 14.0 | 17.4 | 13.2 |
|   7 or more days | 9.0 | 16.7 | 16.0 | 53.7 | 36.0 | 32.5 |
| Type of facility | | | | | | |
|   Public | 58.7 | 62.2 | 69.9 | -- | -- | -- |
|   Mission | 36.5 | 26.2 | 13.0 | -- | -- | -- |
|   Private | 4.9 | 11.6 | 17.1 | -- | -- | -- |
| Average number of days waited* | 2.9 | 3.3 | 3.6 | 5.0 | 4.9 | 4.6 |

* Household survey: due to eligibility requirements, maximum was 15 days. Patient exit survey: means calculated only for patients who waited less than a month to visit a modern provider and excluding those who visited other facility beforehand.

Insured respondents from the household survey were more likely to perceive their illness as "Very serious" compared uninsured respondents. Just over half (51 percent) of ill respondents in the household sample self-treated with medicines found in the home. However, sick individuals in Nkoranza were significantly more likely to self-medicate than the individuals in Offinso (p=.0013). Treatment seeking from informal providers was high, ranging from 67 to 76 percent. Nearly half the respondents sought treatment from a modern health facility. Insured individuals were significantly more likely (57 percent) than either Nkoranza uninsured (43 percent) or Offinso respondents (32 percent) to seek care from the formal health sector (p=.0019). As presented in Table 7.1, the predominant source of formal care is the public sector, although the Nkoranza insured reported a significantly higher use of mission facilities (37 percent) than did Offinso (13 percent). It should be noted that while both districts have a mission hospital, at the time of the survey, only Nkoranza's mission hospital was participating in a CBHI scheme.

Timing of treatment seeking is important, as prompt treatment can improve health outcomes. However, lack of financial resources can be a barrier to treatment. As such, insurance enrollment should lead to timely care seeking, as the financial barriers are less. Household survey respondents waited on average three days after onset of illness before seeking formal treatment, whereas patient exit respondents waited on average five days. The household data suggests that CBHI enrollment affects the timing of use of modern health care providers when sick, although this is not validated by the patient exit data. Referring to the household sample, Nkoranza insured are significantly more likely to seek care within the first three days than are Offinso uninsured (p=.0263).

Uninsured patients in the patient exit survey were significantly more likely to perceive their condition as serious or very serious (79 percent), compared to insured patients (61 percent). The patient survey detected no significant differences between insured and uninsured patients in the tendency to use self-medication at home or to seek care from informal providers before visiting a modern provider. For both surveys, the vast majority (87 percent) of patients who sought informal care visited a chemical seller. Patient exit data reveal that insured patients were significantly less likely to seek care during the first three days after onset of illness. This might be explained by the fact that they were less likely to perceive their condition as serious or very serious, compared to uninsured patients.

To shed further light on timing of treatment, a regression analysis (not shown) was done using the household data to examine the predictors of seeking treatment in the first two days after onset. Insured respondents were 2.2 times more likely to seek care promptly (p=.020). Severity of illness also predicted prompt treatment − respondents who perceived their affliction as "Serious" were 3.4 times more likely to seek prompt outpatient care (p=.018).

Aside from expecting insured patients to seek care more promptly, one might assume that insured patients would be more likely to skip informal care and go directly to the formal health sector. Analysis of the household data supports this theory, showing that 25 percent of insured individuals sought care from the formal sector as their first choice of care, compared to 16 percent of Nkoranza uninsured (p=.0033).

## 7.2    Service Intensity at Formal Health Care Facilities

Respondents who sought health care at a modern health facility were asked about the type of services they received during their outpatient visit. Table 7.2 presents data on their experience. Nearly all respondents from both surveys received a consultation during their visit. Just over 20 percent of household respondents reported receiving lab tests, and 5 percent had an x-ray at the facility or were admitted to hospital. Among patient respondents, 13 percent reported that they had lab tests done during their visit. Insured outpatients in Nkoranza and Kwahu South were significantly more likely to receive lab tests, compared to uninsured outpatients in those districts: 18 percent of those who were insured and 7 percent of those who were not insured reported receiving lab tests (p=0.00).

Interestingly, for both the household and patient samples, insured individuals were more likely to report being dissatisfied with the outpatient services they receive. This difference is significant for both samples. Since the proportion of uninsured in Nkoranza that report being dissatisfied with the care they receive mirrors that of Offinso, this finding might be explained by insured individuals expecting a higher level of service than uninsured.

**Table 7.2. Formal Care Seeking Experience by Insurance Status**

| | Household | | | Patient Exit | | |
|---|---|---|---|---|---|---|
| | **Insured Nkoranza (%) (n=79)** | **Uninsured Nkoranza (%) (n=58)** | **Uninsured Offinso (%) (n=40 )** | **Insured Nkoranza and Kwahu South (%) (n=103)** | **Uninsured Nkoranza and Kwahu South (%) (n=197)** | **Uninsured All other districts (%) (n=326)** |
| Services received during this visit | | | | | | |
| Consultation | 100 | 100 | 100 | 99.0 | 99.0 | 97.6 |
| Lab test | 19.4 | 15.4 | 33.8 | 17.5 | 6.6 | 15.3 |
| X-rays | 6.6 | 5.5 | 0.0 | 1.9 | 1.0 | 0.31 |
| Satisfaction with services received | | | | | | |
| Very satisfied | 84.5 | 86.9 | 93.4 | 90.1 | 93.8 | 90.1 |
| Somewhat satisfied | 2.9 | 10.0 | 4.1 | 4.0 | 5.7 | 6.8 |
| Not satisfied | 12.6 | 3.1 | 2.5 | 5.9 | 0.5 | 3.1 |

The majority of respondents in both samples who sought care from a formal health facility received a drug prescription. Nearly all household respondents (97 percent) received a drug prescription during their visit, and among these respondents, 72 percent obtained the full prescription from that facility. Although private and mission facilities had higher rates of drug availability than public facilities, this difference was not significant. No significant differences between insured and uninsured emerged with respect to filling the drug prescription.

Among patient exit respondents, 93 percent received a drug prescription and 84 percent of those patients purchased the full dosage of all prescribed drugs. Surprisingly, insured outpatients were significantly less likely than uninsured outpatients to fill their full prescription (81 and 93 percent, respectively). A possible explanation is that insured patients were more likely to perceive their condition as "not serious" and, therefore, more likely to deem it unnecessary to purchase the drugs.

Table 7.3 presents the results of a regression analysis of the predictors of formal health care seeking for ill individuals identified through the household survey. Patient exit respondents are excluded from this analysis, as all participants by virtue of being at the health facility had sought formal treatment. Insurance appears to have an effect on formal care seeking behavior. Insured individuals are 1.8 times more likely than uninsured to seek formal health care. Perceived severity is also an important predictor of formal care seeking. Respondents who perceived their illness as "Serious" were 2.8 times more likely to seek care, and those who perceived their illness as "Very Serious" were 4.6 times more likely than those who considered their affliction as "Not Serious". Respondents from the wealthiest quintile were nearly twice as likely than poorest respondents to seek care, and women nearly 1.5 times more likely than men, although both results are only marginally significant (p=0.072).

**Table 7.3. Determinants of Formal Care Seeking – Household Survey**

| Patient and HH Characteristics | Odds ratio | Confidence interval | P-value |
|---|---|---|---|
| N=415 | | | |
| Age of patient | | | |
| 0-4 (R) | 1.00 | | |
| 5-14 | 1.39 | 0.63-3.08 | 0.410 |
| 15-24 | 1.06 | 0.57-1.99 | 0.851 |
| 25-49 | 0.80 | 0.42-1.55 | 0.505 |
| 50+ | 0.79 | 0.45-1.40 | 0.420 |
| Sex of patient | | | |
| Male (R) | 1.00 | | |
| Female | 1.44 | 0.97-2.15 | 0.072 |
| Severity of illness/injury | | | |
| Not serious (R) | 1.00 | | |
| Serious | 2.78 | 1.34-5.74 | 0.007 |
| Very serious | 4.63 | 2.48-8.63 | 0.000 |
| Health insurance status | | | |
| Uninsured (R) | 1.00 | | |
| Insured | 1.81 | 1.22-2.70 | 0.004 |
| Sex of HH head | | | |
| Male (R) | 1.00 | | |
| Female | 0.96 | 0.52-1.77 | 0.900 |
| Education of HH head | | | |
| No education (R) | 1.00 | | |
| Primary | 0.71 | 0.39-1.30 | 0.262 |
| Secondary or higher | 0.75 | 0.43-1.32 | 0.316 |
| Occupation of HH head | | | |
| No job (R) | 1.00 | | |
| Agriculture | 0.62 | 0.29-1.34 | 0.214 |
| Other | 0.60 | 0.23-1.51 | 0.269 |
| HH wealth | | | |
| Poorest (R) | 1.00 | | |
| Poor middle | 0.90 | 0.29-2.78 | 0.848 |
| Middle | 0.97 | 0.46-2.01 | 0.925 |
| Middle rich | 1.66 | 0.68-4.04 | 0.256 |
| Richest | 1.71 | 0.95-3.06 | 0.072 |

## 7.3 Affordability of Outpatient Care

All respondents who sought health care, whether formal or informal, were queried if they were asked to pay for the visit. If so, respondents were asked how they paid the bill, and what the amount was. Table 7.4 presents a breakdown of payments by type of service at formal health care facilities. For the household sample, payments were calculated across all respondents who had been recently ill or injured regardless of whether they received care from the formal health sector. For the patient exit sample, mean payments were calculated across all patients (e.g., formal care seekers). All payment amounts are in Ghanaian cedis.

**Table 7.4. Mean Out-of-Pocket Payments for Outpatient Care at Health Facilities, in Cedis**

|  | Household Sample* | | | Patient Exit Sample | | |
|---|---|---|---|---|---|---|
|  | Nkoranza Insured | Nkoranza Uninsured | Offinso Uninsured | Insured<br><br>Nkoranza and Kwahu South | Uninsured<br><br>Nkoranza and Kwahu South | Uninsured<br><br>All other districts |
| N | 146 | 141 | 128 | 103 | 197 | 326 |
| Consultation | 2,718 | 1245 | 997 | 4,315 | 2,863 | 2,821 |
| Drugs | 13,498 | 10,055 | 8,218 | 14,957 | 12,554 | 13,252 |
| Lab | 1,286 | 958 | 1864 | 3,582 | 472 | 1,574 |
| X-rays* | -- | -- | -- | 413 | 305 | 127 |
| Other* | -- | -- | -- | 1,262 | 1,216 | 525 |
| Total | 17,502 | 12,258 | 11,079 | 24,529 | 17,410 | 18,299 |

\* Sample size for x-rays and other services too small to compute for household survey.

Note: Exchange rate at time of survey (September 2004) 1 USD = 8,300 Ghanaian cedis.

As is evident in Table 7.4, drug expenditures comprise the majority of total health care costs across all groups. Referring to the household sample, Nkoranza insured spent significantly more for drugs than their uninsured counterparts in either Nkoranza or Offinso. The differences in drug payments among patient exit respondents were not significant. Compared to drug costs, expenditures for consultation, lab tests, are x-rays are nominal. Insured respondents appear to be spending significantly more for formal health care than their uninsured counterparts.

However, examination of all out-of-pocket expenditures for recent curative care episode changes the equation. Table 7.5 reports total expenditures for informal care, transportation to the health facility, formal care, and drug costs. Household respondents reported higher payments for informal care than for formal care. The reverse was true for the patient respondents. While not as pronounced in this table, drug payments still make up about half of total health expenditures. Comparing total out-of-pocket expenditures for recent curative episode, insurance membership does not appear to have an effect on health care payments. The total health care expenditures presented in Table 7.5 are nearly identical across the comparison groups, ranging from 21,949 to 29,152 cedis. As mentioned earlier, these results are not unexpected, as both existing CBHI schemes primarily cover inpatient services.

**Table 7.5. Total Health Care Expenditures for Recent Curative Episode**

| | Household Sample | | | Patient Exit Sample | | |
|---|---|---|---|---|---|---|
| | **Nkoranza Insured** | **Nkoranza Uninsured** | **Offinso Uninsured** | **Insured** <br> **Nkoranza and Kwahu South** | **Uninsured** <br> **Nkoranza and Kwahu South** | **Uninsured** <br> **All other districts** |
| | **Mean Payment in Cedis** | | | | | |
| N | 146 | 141 | 128 | 103 | 197 | 326 |
| Informal Care | 4,934 | 10,300 | 9,215 | 2,507 | 2,733 | 3,961 |
| Transportation | 1,417 | 718 | 1,655 | 1,777 | 2,299 | 2,028 |
| Drugs | 13,498 | 10,055 | 8,218 | 14,957 | 12,554 | 13,252 |
| Formal Care | 4,004 | 2,203 | 2,861 | 9,911 | 5,831 | 7,866 |
| Total | 23,853 | 23,276 | 21,949 | 29,152 | 23,417 | 27,107 |

Respondents who sought outpatient care from the formal health sector were asked if they had sufficient cash to pay their bill at the facility. Among household respondents, 85 percent reported sufficient funds to pay their bill. While there was no significant difference in ability to afford the bill among Nkoranza respondents, further analysis revealed that insured Nkoranza respondents were significantly more likely than Offinso respondents to have sufficient cash to pay their bill (90 percent and 73 percent, respectively; p = 0.0246).

Approximately the same overall proportion (89 percent) of patient exit respondents had sufficient cash reserves to pay their outpatient bill. Among those who did not, 47 percent had to borrow money from friends or relatives, 12 percent sold agricultural produce, and 8 percent took money from the "susu" collector. There were no significant differences between insured and uninsured outpatients in Nkoranza and Kwahu South, as 93 percent of patients in both groups were able to pay. [1]

Table 7.6 presents findings from a regression analysis on predictors of total payment at point of service for outpatient services. The regression model was adjusted using a lognormal transformation of the dependent variable ($\ln(Y+1)$ where Y=total outpatient payment).

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[1] A large number of respondents did not answer this question. If total bill reported was 0 for such respondents, it is assumed that they had enough cash at home to pay for health care.

**Table 7.6. Determinants of Total Outpatient Payment at a Formal Health Facility***

| Patient and HH Characteristics | Household Sampl (n=165) | | | Exit Sample (n=577) | | |
|---|---|---|---|---|---|---|
| | Coefficient | SE | P-value | Coefficient | SE | P-value |
| Age of patient | | | | | | |
| 0-4 (R) | 0.00 | | | 0.00 | | |
| 5-14 | 0.83 | 0.71 | 0.252 | 0.46 | 0.34 | 0.184 |
| 15-24 | -0.20 | 0.71 | 0.783 | 0.82 | 0.33 | 0.013 |
| 25-49 | -0.33 | 0.47 | 0.945 | 0.78 | 0.29 | 0.008 |
| 50+ | -0.53 | 1.10 | 0.631 | 0.89 | 0.35 | 0.011 |
| Sex of patient | | | | | | |
| Male (R) | 0.00 | | | 0.00 | | |
| Female | -0.80 | 0.41 | 0.058 | - 0.24 | 0.22 | 0.273 |
| Severity of illness/injury | | | | | | |
| Not serious (R) | 0.00 | | | 0.00 | | |
| Serious | 0.77 | 0.80 | 0.339 | 0.80 | 0.22 | 0.000 |
| Very serious | 1.74 | 0.83 | 0.044 | 0.35 | 0.35 | 0.319 |
| Health insurance status | | | | | | |
| Uninsured (R) | 0.00 | | | 0.00 | | |
| Insured | -0.39 | 0.32 | 0.228 | - 0.66 | 0.29 | 0.022 |
| Type of health facility | | | | | | |
| Public (R) | 0.00 | | | 0.00 | | |
| Mission or private | 1.32 | 0.54 | 0.019 | 0.73 | 0.23 | 0.001 |
| Education** | | | | | | |
| No education (R) | 0.00 | | | 0.00 | | |
| Primary | 0.99 | 0.66 | 0.145 | 0.22 | 0.24 | 0.367 |
| Secondary or higher | 0.17 | 0.71 | 0.814 | 0.41 | 0.37 | 0.265 |
| Occupation** | | | | | | |
| No job (R) | 0.00 | | | 0.00 | | |
| Agriculture | 0.36 | 0.98 | 0.713 | 0.76 | 0.39 | 0.049 |
| Other | 0.86 | 1.29 | 0.507 | 0.69 | 0.36 | 0.055 |
| HH wealth | | | | | | |
| Poorest (R) | 0.00 | | | 0.00 | | |
| Poor middle | -1.59 | 0.50 | 0.003 | 0.40 | 0.32 | 0.220 |
| Middle | -1.05 | 0.75 | 0.166 | -0.01 | 0.33 | 0.974 |
| Middle rich | -0.75 | 1.00 | 0.454 | 0.02 | 0.37 | 0.954 |
| Richest | -2.22 | 0.82 | 0.010 | 0.45 | 0.43 | 0.300 |
| Sex of HH head | | | | | | |
| Male (R) | 0.00 | | | | | |
| Female | 0.65 | 0.59 | 0.282 | | | |
| Age of HH head | | | | | | |
| Less than 50 (R) | 0.00 | | | | | |
| 50+ | -0.44 | 0.72 | 0.545 | | | |
| Intercept | 9.02 | 1.26 | 0.000 | 7.06 | 0.50 | 0.000 |

* Total payment for formal health care in the exit survey data is the sum of payments reported for all services received by the patient plus the amount paid for drugs. Children for whom primary reason for visit was immunization or weight check are excluded from the regression.

**For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

For the household sample, receiving care from a mission/private facility and severity of illness predicted significantly higher outpatient payments. Female patients were associated with lower payments, although this was only marginally significant. Residence in the poor-middle and richest quintiles predicted lower outpatient payments. The absence of a uniform wealth effect may be the result of small samples sizes. No age effects were noted. The patient exit sample revealed that mission/private facility and employed respondent predicted higher out-of-pocket payments as did increasing age and employment. Respondents who perceived their illness as "Serious" also paid more for outpatient care, although this was not the case with respondents who rated their illness as "Very serious". Interestingly, insurance enrollment predicted lower payments, even though outpatient health services were not covered by either CBHI scheme. Wealth effects were not apparent for either the household or patient exit data.

A related regression examined the predictors of affordability of paying for formal outpatient care, that is, the dependent variable was the ability of the patient to pay their bill. The results are presented in Table 7.7. For the respective samples, different factors appear to contribute to ability to pay the outpatient bill, with the exception of severity of illness. The more serious the patient perceives the illness or injury, the less likely they are to be able to pay the bill. For the household survey, other factors which make it less likely a patient can pay their bill include female sex, and residing in a female-headed household. Insured patients are three times more likely than uninsured patients to be able to pay their bill, and patients from the second and fourth quintiles are also significantly more likely to afford outpatient care. For the patient exit survey, employment significantly predicts ability to pay. Neither age nor education appear to affect ability to pay.

**Table 7.7. Determinants of Affordability of Outpatient Health Care**

| Patient and HH Characteristics | Household Sample (n=167) | | | Exit Sample (n=592) | | |
|---|---|---|---|---|---|---|
| | Odds Ratio | Confidence Interval | P-value | Odds Ratio | Confidence Interval | P-value |
| Age of patient | | | | | | |
| 0-4 (R) | 1.00 | | | 1.00 | | |
| 5-14 | 3.63 | 1.20-10.95 | 0.023 | 0.51 | 0.23-1.15 | 0.105 |
| 15-24 | 1.33 | 0.17-10.09 | 0.775 | 1.01 | 0.41-2.49 | 0.982 |
| 25-49 | 1.43 | 0.34-6.07 | 0.617 | 1.21 | 0.54-2.74 | 0.645 |
| 50+ | 2.52 | 0.47-13.70 | 0.275 | 1.77 | 0.67-4.72 | 0.251 |
| Sex of patient | | | | | | |
| Male (R) | 1.00 | | | 1.00 | | |
| Female | 0.23 | 0.07-0.80 | 0.023 | 1.17 | 0.65-2.09 | 0.605 |
| Severity of illness/injury | | | | | | |
| Not serious (R) | 1.00 | | | 1.00 | | |
| Serious | 0.59 | 0.13-2.76 | 0.495 | 0.46 | 0.23-0.92 | 0.029 |
| Very serious | 0.18 | 0.03-0.92 | 0.040 | 0.24 | 0.10-0.58 | 0.002 |
| Health insurance status | | | | | | |
| Uninsured (R) | 1.00 | | | 1.00 | | |
| Insured | 2.97 | 1.03-8.55 | 0.043 | 1.55 | 0.59-4.05 | 0.376 |
| Type of health facility | | | | | | |
| Public (R) | 1.00 | | | 1.00 | | |
| Mission or private | 0.21 | 0.03-1.39 | 0.104 | 1.08 | 0.57-2.06 | 0.809 |
| Education* | | | | | | |
| No education (R) | 1.00 | | | 1.00 | | |
| Primary | 1.28 | 0.20-8.21 | 0.791 | 1.83 | 0.97-3.43 | 0.061 |
| Secondary or higher | 0.64 | 0.09-4.65 | 0.648 | 1.27 | 0.48-3.36 | 0.624 |
| Occupation | | | | | | |
| No job (R) | 1.00 | | | 1.00 | | |
| Agriculture | 0.33 | 0.07-1.64 | 0.170 | 2.57 | 1.06-6.25 | 0.037 |
| Other | 1.00 | | | 3.81 | 1.63-8.91 | 0.002 |
| HH wealth | | | | | | |
| Poorest (R) | 1.00 | | | 1.00 | | |
| Poor middle | 8.28 | 1.06-64.75 | 0.044 | 0.81 | 0.36-1.84 | 0.615 |
| Middle | 4.78 | 0.70-32.38 | 0.106 | 0.96 | 0.40-2.31 | 0.931 |
| Middle rich | 16.10 | 2.33-111.20 | 0.006 | 1.34 | 0.47-3.75 | 0.583 |
| Richest | 1.47 | 0.24-9.11 | 0.673 | 1.25 | 0.35-4.42 | 0.733 |
| Sex of HH head | | | | | | |
| Male (R) | 1.00 | | | | | |
| Female | 0.06 | 0.01-0.53 | 0.012 | | | |
| Age of HH head | | | | | | |
| Less than 50 (R) | 1.00 | | | | | |
| 50+ | 2.71 | 0.46-15.89 | 0.259 | | | |

*For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

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## 7.4    Summary: Insurance Enrollment and Outpatient Care

Among household respondents who had recently been ill or injured, the insured were nearly two times more likely than uninsured to seek formal health care for their ailment. Seriousness of illness also predicted seeking care from the formal health sector. Household data also indicated that compared to uninsured respondents, insured individuals were two times more likely than uninsured to seek prompt treatment (the first two days) and more frequently skipped informal care, instead seeking initial treatment from a formal health care facility. No differences in the types of services received between insured and uninsured respondents were apparent.

# 8. Effects of Enrollment on Utilization and Affordability of Inpatient Care

## 8.1 Utilization of Inpatient Care

This section presents findings from both surveys on utilization of inpatient care in the six study districts. While the household findings derive from respondents who had been hospitalized in the preceding one year, the patient exit results are from patients being discharged from one of the sampled inpatient facilities. Because of the different sampling methodologies, there are slight variations between the two surveys, and as a result some of the analyses are restricted to one sample.

Respondents in the patient exit survey were asked if they had sought care somewhere else before coming to the hospital. While insured patients were less likely than uninsured patients to seek care from an informal provider, the difference is not significant. Significant predictors of informal care seeking prior to seeking treatment at the hospital included young age (respondents over 14 years were less likely to seek informal care than were 0-4 year olds) and sex of patient (female patients were less likely to use informal care).

Patient exit respondents were also asked about the separate services they received, and how satisfied they were with the care they received. The results are presented in Table 8.1. As might be expected, the proportion of patients receiving lab tests is much higher than reported for outpatient care, with no difference between insured and uninsured patients in Nkoranza and Kwahu South. However, insured patients were much more likely to have an x-ray taken than were uninsured patients in any of the districts.

Unlike the results for outpatient sample, insured inpatients were more likely to report high satisfaction with the services received, and least likely to report they were dissatisfied. This is possibly due to the fact that for the most part, the inpatient services were covered by their insurance.

**Table 8.1. Service Intensity and Patient Satisfaction – Patient Exit Survey**

| | Insured<br>Nkoranza and Kwahu South<br>(%)<br>(n=136) | Uninsured<br>Nkoranza and Kwahu South<br>(%)<br>(n=187) | Uninsured<br>All other districts<br>(%)<br>(n=254) |
|---|---|---|---|
| Services received during visit | | | |
|   Consultation | 82.2 | 77.4 | 91.5 |
|   Lab test | 72.8 | 69.4 | 56.5 |
|   X-rays | 22.1 | 12.3 | 3.4 |
| | | | |
| Satisfaction with services | | | |
|   Very satisfied | 95.7 | 89.7 | 82.3 |
|   Somewhat satisfied | 3.1 | 4.3 | 12.6 |
|   Not satisfied | 1.2 | 6.0 | 5.1 |

A summary of inpatient experiences is presented in Table 8.2. Across both samples, the majority of inpatients were women (60-65 percent), with little variation between the groups. Mean length of varied from seven to 12 nights for the household survey, and from four to six nights for the patient exit survey. Two outliers who reported extended hospital stays of more than 100 nights are influencing the average length of stay among household respondents. As such, the median number of nights is probably a more reliable figure. Interestingly, median length of stay for insured respondents is the same for both samples – five nights.

Nearly all (97 percent) uninsured inpatients in the patient exit survey reported that they were asked to pay for admission, while very few (10 percent) of the insured inpatients had to pay. The question was not asked of household respondents.

**Table 8.2. Inpatient Experience by Insurance Status**

| | Household Survey | | | Patient Exit Survey | | |
|---|---|---|---|---|---|---|
| | Nkoranza | | Offinso | Nkoranza and Kwahu South | | All other districts |
| | Insured<br>(n=73) | Uninsured<br>(n=46) | Uninsured<br>(n=84) | Insured<br>(n=136) | Uninsured<br>(n=187) | Uninsured<br>(n=254) |
| Average (median) number of nights spent in hospital | 9.0 (5) | 12.3 (7) | 7.3 (3) | 6.1 (5) | 5.8 (4) | 3.8 (3) |
| Asked to pay for admission* | -- | -- | -- | 9.6% | 96.7% | 97.2% |
| Kept in hospital longer than medically necessary due to inability to pay bill | 0 | 19.5 | 9.4 | 0.6 | 14.5** | 1.7 |
| Did not have enough cash at home to pay bill*** | 5.9 | 40.7 | 53.1 | 6.0 | 34.5 | 41.3 |

*Excluding deliveries; question not asked of household respondents.

**The majority of those who had to stay longer are in Kwahu South.

*** From all inpatients, regardless of whether they received a bill.

The survey found evidence of patients being detained due to inability to pay their bill, although this problem only affected the uninsured. Nearly 20 percent of uninsured inpatients in the household survey (Nkoranza), and 15 percent of inpatients in the patient exit sample (Nkoranza and Kwahu South) had to stay at the hospital longer than medically necessary because they were not able to pay their hospital bill. This phenomenon appears to be associated with mission hospitals, as the highest prevalence of being detained is in districts with an MHO (i.e., Nkoranza and Kwahu South) where inpatient services are largely delivered by mission facilities. On average, detained patients had to stay an additional three nights due to inability to pay. This finding is likely contributing to the relatively long hospital stays reported by uninsured household respondents in Nkoranza.

Related to the results on payment for admission and being detained due to inability to pay, patients also reported whether or not they could afford their hospital stay. The vast majority of insured patients in the exit survey (94 percent) could afford inpatient care – many of these were covered at least in part by their insurance. [2] Similarly, only five insured respondents from the household survey reported they did not have sufficient cash reserves to pay their inpatient bill. However, a substantial proportion of uninsured respondents did not have sufficient cash reserves to pay their inpatient bill. Of note is Ajumako, where 70 percent of inpatients in the exit survey said they did not have enough cash at home to pay their bill. For both samples, a significantly higher proportion of insured respondents could afford to pay their inpatient bill, compared to uninsured respondents. Among patient exit survey respondents who did not have enough cash at home to pay their hospital bill, 47 percent borrowed money from friends or relatives, 16 percent had to sell agricultural produce, and 14 percent had to draw from their savings.

Table 8.3 presents the regression results examining predictors of length of hospital stay. The only factor that significantly affected length of stay for both samples was if the patient was detained due to inability to pay, and this was only marginally significant for the household survey (p=0.060). For the household survey, the only other predictor associated with longer length of stay was older age of household head. For the patient exit survey, insurance enrollment, age, and treatment at a mission facility predicts longer stay. Wealth was not a significant factor for either sample.

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[2] A large number of respondents did not answer this question. If total bill reported was 0 for such respondents, it is assumed that they had enough cash at home to pay for health care.

**Table 8.3. Determinants of Length of Hospital Stay**

| Patient and HH Characteristics | Household Sample (n=202) | | | Exit Sample (n=568) | | |
|---|---|---|---|---|---|---|
| | Coefficient | SE | P-value | Coefficient | SE | P-value |
| Age of patient | | | | | | |
| 0-4 (R) | 0.00 | | | 0.00 | | |
| 5-14 | 1.62 | 2.04 | 0.432 | 1.90 | 0.83 | 0.022 |
| 15-24 | 2.78 | 4.14 | 0.507 | 0.46 | 0.77 | 0.544 |
| 25-49 | -0.97 | 2.17 | 0.658 | 1.23 | 0.63 | 0.050 |
| 50+ | 1.51 | 3.32 | 0.651 | 1.79 | 0.72 | 0.013 |
| Sex of patient | | | | | | |
| Male (R) | 0.00 | | | 0.00 | | |
| Female | 1.31 | 1.96 | 0.510 | -0.39 | 0.46 | 0.400 |
| Severity of illness/injury | | | | | | |
| Not serious (R) | | | | 0.00 | | |
| Serious | | | | -0.57 | 0.77 | 0.455 |
| Very serious | | | | 0.56 | 0.78 | 0.470 |
| Health insurance status | | | | | | |
| Uninsured (R) | 0.00 | | | 0.00 | | |
| Insured | 1.83 | 2.26 | 0.423 | 1.60 | 0.61 | 0.009 |
| Type of health facility | | | | | | |
| Public (R) | | | | 0.00 | | |
| Mission or private | | | | 1.18 | 0.51 | 0.020 |
| Detained in hospital because | | | | | | |
| No (R) | 0.00 | | | 0.00 | | |
| Yes | 13.32 | 6.88 | 0.060 | 4.78 | 0.96 | 0.000 |
| Education* | | | | | | |
| No education (R) | 0.00 | | | 0.00 | | |
| Primary | -1.18 | 2.18 | 0.592 | -0.02 | 0.53 | 0.977 |
| Secondary or higher | -1.86 | 2.42 | 0.448 | 0.08 | 0.74 | 0.918 |
| Occupation* | | | | | | |
| No job (R) | 0.00 | | | 0.00 | | |
| Agriculture | -0.60 | 2.20 | 0.787 | -1.53 | 0.87 | 0.078 |
| Other | 3.02 | 2.78 | 0.283 | -1.46 | 0.85 | 0.087 |
| HH wealth | | | | | | |
| Poorest (R) | 0.00 | | | 0.00 | | |
| Poor middle | -1.69 | 3.51 | 0.634 | 0.33 | 0.76 | 0.664 |
| Middle | -0.10 | 3.83 | 0.980 | 1.06 | 0.81 | 0.188 |
| Middle rich | -2.99 | 3.28 | 0.367 | 0.41 | 0.80 | 0.610 |
| Richest | -1.54 | 2.89 | 0.597 | 0.01 | 0.78 | 0.990 |
| Sex of HH head | | | | | | |
| Male (R) | 0.00 | | | | | |
| Female | -0.14 | 2.44 | 0.953 | | | |
| Age of HH head | | | | | | |
| Less than 50 (R) | 0.00 | | | | | |
| 50+ | 6.18 | 2.33 | 0.011 | | | |
| Intercept | 4.40 | 3.52 | 0.218 | 4.33 | 1.21 | 0.000 |

\* For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

## 8.2    Affordability of Care

Respondents who had been hospitalized were asked whether they had to pay for their inpatient care at point of service, whether they had sufficient cash reserves to pay their bill, and how much if any their insurance contributed to their hospital costs.

The potential for recall error exists for the household survey, as family members who had been hospitalized throughout the preceding year were eligible for the survey and this long period may have made it difficult to remember amounts paid. For this reason, respondents were only asked to report the total amount they paid, and any amount their insurance paid toward their hospital care. Inpatient exit interviews asked more detailed payment information, by type of service received.

Table 8.4 presents the mean out-of-pocket expenditures at point of service for inpatient care received by respondents in the household and patient exit surveys. For the household sample, mean total payments were calculated by insurance status and district. As noted above, household survey respondents were asked only for the total out-of-pocket expenditure, whereas the inpatient exit survey were asked to report amounts paid by individual service category. Mean payments were calculated for this sample regardless if the patient received the service, to reflect expected value of payments for care in the event of illness requiring hospitalization.

The household data show that while nearly three-quarters (74 percent) of members reported full insurance coverage of their hospital bill, 4 percent reported partial coverage, and 22 percent reported that the Nkoranza scheme did not pay anything towards their hospital bill. For those who reported no insurance coverage, it is possible that some of them did not stay long enough for their coverage to take effect. Another possible explanation concerns the reason for admission. If the "reproductive health" hospitalizations were actually for post-abortion care, the Nkoranza scheme explicitly excludes such services from coverage.

Despite these questions, it is evident from the data that insured individuals paid significantly less for inpatient care than did uninsured individuals. Whereas the average payment across all respondents in the household sample was 213,152 cedis, insured Nkoranza respondents paid only 58,722 cedis, or approximately 28 percent of the average payment. The difference is especially striking between insured and uninsured respondents in Nkoranza, where uninsured inpatients paid eight times more for their hospital care than did insured patients. The fact that uninsured inpatients in Nkoranza paid so much more than uninsured inpatients in Offinso may be attributed to the type of facility: Nkoranza only has a mission hospital, whereas Offinso respondents could have sought care from a mission or a government hospital. On average, the Nkoranza scheme paid 535,734 cedis per insured inpatient (n=43) in the household sample.

**Table 8.4 Mean Inpatient Payments by Insurance Status**

| Household | Insured<br>Nkoranza | Uninsured<br>Nkoranza | Uninsured<br>Offinso |
|---|---|---|---|
| N | 73 | 46 | 84 |
| Total (in cedis)* | 58,722 | 490,787 | 290,065 |
| Patient Exit | Insured<br>Nkoranza and Kwahu South | Uninsured<br>Nkoranza and Kwahu South | Uninsured<br>All other districts |
| | Payment in Cedis | | |
| N | 136 | 187 | 254 |
| Consultation | 2,077 | 8,671 | 4,452 |
| Admission | 3,147 | 132,640 | 63,125 |
| Lab | 1,779 | 23,532 | 14,665 |
| X-rays | 542 | 3,762 | 1,732 |
| Other fees | 551 | 30,075 | 17,501 |
| Drugs** | 6,991 | 150,366 | 91,506 |
| Total | 15,087 | 349,046 | 192,981 |

\* Respondents for the household survey were only asked total amount paid.

\** Includes drugs purchased in and outside of the hospital.

The data from the patient exit survey supports the findings from the household survey. As shown in Table 8.4, mean out-of-pocket payments for hospital admission and inpatient services are much lower for insured than for uninsured patients. Drugs are a major driver of the cost of inpatient care, accounting for nearly half of total cost, regardless of insurance status.[3] While the cost of admission constitutes 21 percent of formal care costs for insured patients, it accounts for 33 percent and 38 percent of total costs for the two groups of uninsured patients.

As shown by the total cost figures in Table 8.5, insurance has a significant protective effect for inpatient care payments: insured patients paid between 8 and 14 percent of the average payment for uninsured patients.

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[3] We detected enumerator error in the question asking for out-of-pocket drug payments. It appears that enumerators recorded the cost of drugs (shown on the bill received by each patient at discharge), rather than the out-of-pocket amount paid by patients, which gives no information on insurance coverage of drugs. Since both insurance schemes cover all drugs for inpatients, we assume that insured patients who did not have to pay for admission had all drug costs covered by insurance.

**Table 8.5 Total Expenditures for Inpatient Episode – Exit Survey**

|  | Insured Nkoranza and Kwahu South | Uninsured Nkoranza and Kwahu South | Uninsured All other districts |
|---|---|---|---|
| Payment in Cedis | | | |
| N | 136 | 187 | 254 |
| Formal care* | 17,043 | 222,626 | 110,190 |
| Drugs** | 6,991 | 150,366 | 91,506 |
| Informal care | 6,322 | 4,294 | 4,220 |
| Transportation | 6,250 | 7,572 | 8,953 |
| Total | 30,606 | 384,858 | 214,869 |

*Fees paid to all formal providers, including other facilities visited before facility where patient was interviewed.

** Includes drugs purchased in and outside of the hospital.

Table 8.6 presents the results from a regression of predictors of whether or not a patient could afford their hospital care. Insured inpatient respondents were considered "able to pay" if they reported their payment as "0" and indicated that their insurance paid for their bill. Results of this model reveal that the key determinants of affording the hospital bill are enrollment in insurance, mission facility, wealth, and older household head. Insurance is the most significant predictor, with insured household respondents nearly 17 times and insured patient exit respondents 8 times more likely to afford their bill than their uninsured counterparts. The emergence of mission facility predicting ability to pay is likely linked to the insurance effect, as people who are insured are more likely to seek care from the mission hospital than are uninsured. While the finding that respondents from the top wealth quintile in the household survey are nine times more likely to be able to pay their bill is not surprising, it is surprising that the likelihood of respondents in the poor-middle quintile is nearly as high. This result may be due to the relatively small sample size.

**Table 8.6. Determinants of Affordability of Inpatient Care**

| Patient and HH Characteristics | Household Sample (n=203) | | | Exit Sample (n=482) | | |
|---|---|---|---|---|---|---|
| | Odds Ratio | Confidence Interval | P-value | Odds Ratio | Confidence Interval | P-value |
| | | | | | | |
| Age of patient | | | | | | |
| 0-4 (R) | 1.00 | | | 1.00 | | |
| 5-14 | 1.27 | 0.47-3.44 | 0.627 | 0.71 | 0.34-1.47 | 0.358 |
| 15-24 | 5.13 | 0.72-36.79 | 0.101 | 0.79 | 0.40-1.57 | 0.504 |
| 25-49 | 1.22 | 0.43-3.48 | 0.703 | 0.73 | 0.41-1.29 | 0.277 |
| 50+ | 0.71 | 0.13-4.01 | 0.693 | 0.65 | 0.35-1.23 | 0.184 |
| Sex of patient | | | | | | |
| Male (R) | 1.00 | | | 1.00 | | |
| Female | 0.55 | 0.26-1.17 | 0.120 | 1.28 | 0.85-1.93 | 0.238 |
| Severity of illness/injury | | | | | | |
| Not serious (R) | | | | 1.00 | | |
| Serious | | | | 0.59 | 0.28-1.24 | 0.164 |
| Very serious | | | | 0.56 | 0.27-1.17 | 0.125 |
| Health insurance status | | | | | | |
| Uninsured (R) | 1.00 | | | 1.00 | | |
| Insured | 16.6 | 7.49-36.84 | 0.000 | 7.83 | 2.32-26.37 | 0.001 |
| Type of health facility | | | | | | |
| Public (R) | | | | 1.00 | | |
| Mission | | | | 2.31 | 1.50-3.57 | 0.000 |
| Education* | | | | | | |
| No education (R) | 1.00 | | | 1.00 | | |
| Primary | 0.92 | 0.29-2.86 | 0.876 | 0.95 | 0.60-1.50 | 0.827 |
| Secondary or higher | 1.60 | 0.55-4.64 | 0.376 | 1.09 | 0.57-2.11 | 0.788 |
| Occupation* | | | | | | |
| No job (R) | 1.00 | | | 1.00 | | |
| Agriculture | 1.16 | 0.33-4.13 | 0.812 | 1.05 | 0.49-2.24 | 0.909 |
| Other | 1.25 | 0.44-3.53 | 0.664 | 1.00 | 0.48-2.09 | 0.995 |
| HH wealth | | | | | | |
| Poorest (R) | 1.00 | | | 1.00 | | |
| Poor middle | 7.05 | 1.63-30.5 | 0.010 | 0.77 | 0.40-1.47 | 0.422 |
| Middle | 0.82 | 0.25-2.64 | 0.729 | 1.18 | 0.59-2.36 | 0.641 |
| Middle rich | 2.05 | 0.58-7.27 | 0.260 | 0.77 | 0.37-1.58 | 0.473 |
| Richest | 9.52 | 1.50-60.29 | 0.018 | 1.43 | 0.69-2.69 | 0.333 |
| Sex of HH head | | | | | | |
| Male (R) | 1.00 | | | | | |
| Female | 0.47 | 0.18-1.22 | 0.117 | | | |
| Age of HH head | | | | | | |
| Less than 50 (R) | 1.00 | | | | | |
| 50+ | 3.77 | 1.11-12.8 | 0.034 | | | |

* For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

A regression was conducted to identify the factors that contribute to higher out-of-pocket payments for inpatient care. Similar to Table 7.6, the model was adjusted using a lognormal transformation of the dependent variable. As shown in Table 8.7, insurance enrollment significantly

decreased out-of-pocket expenditures for household respondents, whereas living in a household in which the head has completed secondary education is linked to higher inpatient payments, although this is not significant. For the exit sample, both insurance enrollment and secondary education are significant – being insured predicts lower out-of-pocket payments, and being educated predicts higher payments.

**Table 8.7 Determinants of Out-of-Pocket Payments for Inpatient Care**

| Patient and HH Characteristics | Household Sample (n=203) | | | Exit Sample (n=570) | | |
|---|---|---|---|---|---|---|
| | Coefficient | SE | P-value | Coefficient | SE | P-value |
| Age of patient | | | | | | |
| 0-4 (R) | 0.00 | | | 0.00 | | |
| 5-14 | -0.90 | 0.60 | 0.15 | 0.48 | 0.34 | 0.160 |
| 15-24 | -1.28 | 1.07 | 0.24 | 0.27 | 0.32 | 0.403 |
| 25-49 | 0.26 | 0.69 | 0.71 | 0.48 | 0.26 | 0.065 |
| 50+ | -0.33 | 0.64 | 0.61 | 0.33 | 0.30 | 0.268 |
| Sex of patient | | | | | | |
| Male (R) | 0.00 | | | 0.00 | | |
| Female | 0.65 | 0.52 | 0.22 | - 0.21 | 0.19 | 0.261 |
| Severity of illness/injury | | | | | | |
| Not serious (R) | | | | 0.00 | | |
| Serious | | | | - 0.58 | 0.32 | 0.066 |
| Very serious | | | | 0.05 | 0.32 | 0.864 |
| Health insurance status | | | | | | |
| Uninsured (R) | 0.00 | | | 0.00 | | |
| Insured | -9.74 | .46 | 0.000 | -10.34 | 0.25 | 0.000 |
| Type of health facility | | | | | | |
| Public (R) | | | | 0.00 | | |
| Mission | | | | 0.25 | 0.21 | 0.233 |
| Education* | | | | | | |
| No education (R) | 0.00 | | | 0.00 | | |
| Primary | -0.33 | 0.51 | 0.518 | -0.14 | 0.21 | 0.537 |
| Secondary or higher | -0.80 | 0.41 | 0.056 | 0.70 | 0.31 | 0.022 |
| Occupation* | | | | | | |
| No job (R) | 0.00 | | | 0.00 | | |
| Agriculture | -0.06 | 0.98 | 0.950 | -0.02 | 0.36 | 0.950 |
| Other | -0.49 | 0.83 | 0.554 | -0.22 | 0.35 | 0.525 |
| HH wealth | | | | | | |
| Poorest (R) | 0.00 | | | 0.00 | | |
| Poor middle | 0.23 | 0.90 | 0.797 | 0.53 | 0.31 | 0.094 |
| Middle | -0.91 | 0.86 | 0.294 | 0.36 | 0.33 | 0.274 |
| Middle rich | -0.64 | 0.59 | 0.285 | 0.58 | 0.33 | 0.082 |
| Richest | -0.59 | 0.61 | 0.347 | 0.49 | 0.32 | 0.130 |
| Age of HH head | | | | | | |
| 15-49 (R) | 0.00 | | | | | |
| 50+ | -0.03 | 0.50 | 0.956 | | | |
| Sex of HH head | | | | | | |
| Male (R) | 0.00 | | | | | |
| Female | -1.00 | 0.57 | 0.088 | | | |
| Intercept | 12.5 | 1.57 | 0.000 | 11.59 | 0.50 | 0.000 |

* For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

## 8.3    Summary: Insurance Enrollment and Inpatient Care

Insured inpatients in the patient exit survey were significantly more likely than uninsured patients to receive an x-ray, although they reported receiving consultations and lab tests at the same rate. Insured patients from both surveys spent a median of five nights in the hospital, whereas uninsured patients in the household survey spent seven nights and uninsured patients in the patient exit survey spent four nights. Patients from districts without a CBHI scheme spent the fewest nights in hospital (three). Whereas being detained due to inability to pay their bill was nearly nonexistent among insured patients from either survey, a notable proportion of uninsured patients experienced this practice, staying on average an extra three nights. Insured patients in both surveys were largely able to afford their care, whereas a substantial proportion of uninsured patients reported they did not have sufficient cash reserves to pay their bill. Regression analysis showed that enrollment in insurance was the most important predictor of affordability of inpatient care, with insured household respondents 16 times more likely and insured

# 9. Effects of Enrollment on Utilization and Affordability of Maternity Care

## 9.1 Utilization of Maternity Care

Findings from both surveys on utilization of and payment for maternity care (prenatal and delivery care) are presented in this section. The household sample included women who had delivered in the past one year, while the patient exit survey included women who sought prenatal care or delivered in one of the sampled health facilities. Slight variations in the surveys result in limiting some of the analyses to one sample or the other.

### 9.1.1 Prenatal Care

Use of prenatal care was high across both samples. Nearly all women (98 percent) had at least one prenatal visit during their last pregnancy. The majority of women made at least four prenatal visits as recommended in the National Reproductive Health Policy and Standards (Government of Ghana 2003). The mean number of prenatal visits in the household survey was six, with Nkoranza insured women reporting 6.5 visits on average, compared to 5.7 visits for uninsured women, a moderately significant difference (p=.0379). While the majority of women saw a nurse or midwife for prenatal care, insured women were significantly more likely to see a physician for this care. Insured women were also more likely to go to a mission or private facility than were uninsured women, even though prenatal care is not a covered benefit for either insurance scheme (Nkoranza or Okwahuman).

Women in the patient exit survey reported an average of five prenatal visits during their pregnancy. The majority of them (70 percent) reported four or more prenatal visits, 27 percent had 1−3 visits, and only 3 percent reported having no prenatal visits at all. Insurance enrollment did not appear to have an effect on number of prenatal visits.

Table 9.1 presents the results of a regression of determinants of a number of prenatal consultations for both samples. The only common predictor of number of prenatal visits is wealth, with women from the richest quintile in both samples significantly more likely to receive more consultations during their pregnancy. Older women in the patient exit survey have more prenatal consultations on average, while insured women have fewer visits compared to uninsured women. For the household survey, women living in urban areas appear to have significantly fewer prenatal consultations. This is one of the few regression models where area of residence (urban or rural) has an effect on the outcome variable.

**Table 9.1. Determinants of Number of Prenatal Consultations**

| Patient and HH Characteristics | Household Survey Data (n=288) | | | Exit Survey Data (n=107) | | |
|---|---|---|---|---|---|---|
| | Coefficient | Standard Error | P-value | Coefficient | Standard Error | P-value |
| Age | | | | | | |
| 15-24 (R) | 0.00 | | | 0.00 | | |
| 25-49 | -0.08 | 0.35 | 0.831 | 1.02 | 0.46 | 0.028 |
| Health insurance status | | | | | | |
| Uninsured (R) | 0.00 | | | 0.00 | | |
| Insured | -0.02 | 0.48 | 0.953 | -1.37 | 0.52 | 0.009 |
| Education* | | | | | | |
| No education (R) | 0.00 | | | 0.00 | | |
| Primary | 0.61 | 0.35 | 0.831 | 0.25 | 0.59 | 0.658 |
| Secondary or higher | 0.67 | 0.52 | 0.207 | -0.42 | 0.81 | 0.602 |
| Occupation | | | | | | |
| No job (R) | 0.00 | | | 0.00 | | |
| Agriculture | -0.39 | 0.61 | 0.527 | -0.52 | 0.83 | 0.513 |
| Other | -0.08 | 0.74 | 0.914 | - 0.87 | 0.77 | 0.259 |
| Place of residence | | | | | | |
| Rural (R) | 0.00 | | | | | |
| Urban | 0.76 | 0.34 | 0.028 | | | |
| Type of facility | | | | | | |
| Public (R) | 0.00 | | | | | |
| Mission or private | -0.21 | 0.41 | 0.607 | | | |
| HH wealth | | | | | | |
| Poorest (R) | 0.00 | | | 0.00 | | |
| Poor middle | -0.15 | 0.42 | 0.714 | -0.65 | 0.81 | 0.420 |
| Middle | 0.64 | 0.40 | 0.120 | 1.12 | 0.83 | 0.183 |
| Middle rich | 1.46 | 0.86 | 0.097 | 0.82 | 0.83 | 0.326 |
| Richest | 1.35 | 0.48 | 0.007 | 1.77 | 0.87 | 0.046 |
| Constant | 4.76 | 0.63 | 0.000 | 4.55 | 0.87 | 0.000 |

* For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

### 9.1.2    Delivery Care

Assistance from a skilled attendant (i.e., health worker specifically trained in labor and delivery) has been shown to have a positive effect on birth outcomes, both for the mother and infant. As shown in Table 9.2, the majority of women in the household survey were attended by a skilled birth

attendant during their most recent delivery. Although the proportion of insured women delivering at a health facility was higher than for uninsured women, the differences are not significant. It should be noted that normal deliveries were not a covered benefit of the Nkoranza scheme, despite recent efforts to add this to the package of covered services. Women in Nkoranza were more likely to deliver at a mission hospital than were women in Offinso. Although in both districts women are typically attended by a nurse or midwife, the proportion of insured women who were attended by a physician is significantly higher than for uninsured women.

**Table 9.2 Delivery Experiences among Insured and Uninsured Women – Household Survey**

| | Nkoranza | | Offinso |
|---|---|---|---|
| | **Insured** | **Uninsured** | **Uninsured** |
| N=300 | 99 | 110 | 91 |
| Place of delivery | | | |
| District hospital | 31.6 | 36.6 | 52.3 |
| Mission/private hospital | 45.1 | 26.5 | 14.2 |
| Home | 23.3 | 36.9 | 33.5 |
| Assistance during delivery | | | |
| Physician | 12.8 | 6.6 | 3.1 |
| Nurse/Midwife/trained birth attendant | 77.4 | 78.7 | 82.2 |
| Untrained | 9.8 | 14.7 | 14.6 |
| Type of delivery | | | |
| Normal delivery | 84.3 | 92.6 | 96.9 |
| Caesarean delivery | 15.6 | 7.4 | 3.1 |

Among all women in the household sample, 91 percent had a normal delivery. Further examination reveals that insured Nkoranza women were twice as likely as Nkoranza uninsured women to have a caesarean delivery, and five times more likely than Offinso women, a highly significant difference (p= 0.0137). Since they require an extended stay in the hospital, caesarean deliveries are a covered benefit of the Nkoranza scheme.

Among the exit survey respondents, 118 of the women interviewed reported that primary reason for visit was delivery (76 of them were in Nkoranza and Kwahu South). Pregnant women were not more likely to be insured: the proportion of insured among those who had a delivery in Nkoranza and Kwahu South is similar to the proportion of insured in the overall sample in these two districts.

A regression on determinants for delivering at a modern health facility is restricted to women in the household survey, as this group had the option of delivering at home, a choice that 30 percent of the women reported. As Table 9.3 shows, a number of factors effect whether or not a woman delivers in a health care facility. Significant predictors of modern delivery include number of prenatal visits and wealth – with women in the richest quintile nearly eight times more likely than poorer women to deliver at a health facility (p=0.001). Surprisingly, women from households with an educated head are significantly less likely to deliver at a modern facility. While this finding seems at odds with the wealth result, it may be that age of the woman is influencing the regression results. Women between the ages of 25 and 34 are significantly less likely to deliver at a health facility, which is not surprising as childbearing risk is lowest for this age cohort. Insurance membership did not predict delivering in a health facility, presumably because this is not a covered benefit of the Nkoranza scheme.

**Table 9.3. Determinants of Delivery at Modern Health Facility – Household Survey**

| Patient and HH Characteristics (n=288) | Odds Ratio | Confidence Interval | P-value |
|---|---|---|---|
| Age | | | |
|    15-24 | 0.49 | 0.14-1.73 | 0.260 |
|    25-34 | 0.35 | 0.15-0.83 | 0.018 |
|    35+ (R) | 1.00 | | |
| Health insurance status | | | |
|    Uninsured (R) | 1.00 | | |
|    Insured | 1.26 | 0.61-2.63 | 0.525 |
| Number of prenatal visits | 1.16 | 1.03-1.31 | 0.015 |
| Number of children | 0.89 | 0.71-1.12 | 0.307 |
| Education of HH head | | | |
|    No education (R) | 1.00 | | |
|    Primary | 0.25 | 0.10-0.60 | 0.003 |
| Secondary or higher | 0.34 | 0.14-0.82 | 0.018 |
| Occupation of HH head | | | |
|    No job (R) | 1.00 | | |
|    Agriculture | 0.64 | 0.18-2.25 | 0.478 |
|    Other | 0.68 | 0.20-2.33 | 0.532 |
| HH Wealth | | | |
|    Poorest (R) | 1.00 | | |
|    Poor middle | 1.67 | 0.49-5.69 | 0.405 |
|    Middle | 1.40 | 0.48-4.10 | 0.529 |
|    Middle rich | 1.42 | 0.39-5.22 | 0.585 |
|    Richest | 7.74 | 2.31-25.97 | 0.001 |

An additional regression (not shown) on the determinants of delivering with a skilled birth attendant (doctor, nurse/midwife, or trained birth attendant) found wealth was a significant factor. Women from the wealthiest quintile were nearly nine times more likely to deliver with a trained provider, as compared to the poorest women ($p=0.049$).

## 9.2 Affordability of Maternity Care

Women who had recently given birth were asked how much they paid for their maternity care, whether they had sufficient cash reserves to pay their bill, and whether insurance paid for any portion of their care. Given the potential for difficulty in recalling payments from as long as one year prior, women in the household survey were only asked total payments for prenatal and delivery care, whereas women in the patient exit survey were asked more detailed questions about payments by type of service received.

Table 9.4 presents mean payments for prenatal and delivery care for women who delivered at a health facility for both surveys. Among household respondents, uninsured Nkoranza women paid the least for prenatal care, whereas Offinso women paid the most. This is somewhat surprising, as a higher proportion of Offinso women received prenatal care from a public facility as compared to Nkoranza women. Insured women in Nkoranza paid only slightly more for delivery care than for prenatal care, and overall paid significantly less for total maternity care than uninsured women in the sample. As a contrast, uninsured women in Nkoranza and Offinso paid two to four times more for delivery than for prenatal care, suggesting insurance membership can offer protection from the relatively high costs of delivery. One-third of women in the household survey delivered at home. Half of these women reported an expenditure for their home delivery, with an average out-of-pocket payment of 16,839 cedis.

### Table 9.4. Mean Maternity Care Payments by Insurance Status, in Cedis

| | Household | | | Patient Exit | | |
|---|---|---|---|---|---|---|
| | Nkoranza Insured | Nkoranza Uninsured | Offinso Uninsured | Insured Nkoranza and Kwahu South | Uninsured Nkoranza and Kwahu South | Uninsured All other districts |
| N | 77 | 68 | 54 | 27 | 49 | 42 |
| prenatal* | 60,862 | 42,429 | 77,503 | -- | -- | -- |
| Delivery** | 71,347 | 177,529 | 198,953 | 48,285 | 246,180 | 125,022 |
| Total | 132,209 | 219,958 | 276,456 | -- | -- | -- |

\* Information on total prenatal payment is not available the patient exit survey.

\*\* Delivery payments from household survey exclude home deliveries in order to better compare to patient exit payments.

Data from the patient exit survey also shows that insurance offers strong protection against the high costs of delivery: insured women paid, on average, three to five times less than the average amount paid by uninsured women, as shown in Table 9.4. As discussed in the inpatient payments section and shown in Table 9.5 below, drug expenditures are a major cost component for delivery care, accounting for about a third of total delivery costs, regardless of insurance status. While admission costs are the largest share of total delivery costs for uninsured women (42 percent for Nkoranza and Kwahu South uninsured respondents, and 49 percent for the other districts), admission constitutes only 10 percent of total costs for insured women.

### Table 9.5 Breakdown of Mean Payments for Delivery Care – Exit Survey*

| | Insured Nkoranza and Kwahu South (n=27) | Uninsured Nkoranza and Kwahu South (n=49) | Uninsured All other districts (n=42) |
|---|---|---|---|
| Consultation | 370 | 1,847 | 964 |
| Admission | 5,889 | 109,751 | 63,774 |
| Lab | 370 | 4,204 | 1,738 |
| Other fees | 20,556 | 32,653 | 13,957 |
| Drugs** | 21,100 | 97,725 | 44,589 |
| Transportation | 11,204 | 16,980 | 4,631 |
| Total | 59,489 | 263,160 | 129,653 |

\* Household respondents were only asked total amounts paid for prenatal and delivery care.

\*\* Includes drugs purchased in and outside of the hospital.

Table 9.6 presents regression results on the predictors of delivery payments, providing insight into which factors contribute to higher out-of-pocket payments at formal health facilities. Similar to the out-of-pocket regressions for outpatient and inpatient payments, this model was adjusted using lognormal transformation of the dependent variable. Given the fact that only medically assisted deliveries were covered by the Nkoranza and Okwahunan schemes, enrollment and type of delivery (e.g., caesarean or complicated vs. normal) were combined to create three variables: 1) insured caesarean/complicated, 2) insured normal, and 3) uninsured. Whereas insured women in the household survey had a lower average payment for delivery care, the regression results indicate that it is the combination of insurance and a complicated delivery that protects a woman from a high out-of-pocket payment. As seen in Table 9.6, insured women in the household survey who had a caesarean delivery paid significantly less than did uninsured women. In contrast, although insured women who had a normal delivery appeared to pay somewhat less for maternity care than did uninsured women, the difference was not significant. This is not surprising, given that the Nkoranza scheme did not include a normal delivery benefit. Women from female-headed households, and households in the richest quintile paid more for delivery care.

The regression results from the patient exit data also confirm that insured women who reported having complications during their pregnancy or delivery paid significantly less for their delivery than uninsured women.[4] Insured women who had a normal delivery (which is not a covered service) also appear to have paid significantly less than uninsured women. A possible explanation for this finding is that some of these women might have stayed in the hospital overnight, which qualifies them for insurance coverage as inpatients.

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[4] The question in the exit patient survey asked whether the woman had complications during her pregnancy or delivery. It is possible that some of the women who answered 'yes' to this question only had complications during pregnancy and did not need medical assistance at delivery.

**Table 9.6. Determinants of Total Payment for Delivery Assistance**

| Patient and HH Characteristics | Household Survey Data (n=199) | | | Exit Survey Data (n=116) | | |
|---|---|---|---|---|---|---|
| | Coefficient | Standard Error | P-value | Coefficient | Standard Error | P-value |
| Age | | | | | | |
| 15-24 (R) | 0.00 | | | 0.00 | | |
| 25-49 | -0.45 | 0.40 | 0.277 | 0.09 | 0.46 | 0.850 |
| Health insurance and type of delivery | | | | | | |
| Uninsured (R) | 0.00 | | | 0.00 | | |
| Insured – normal delivery | -0.92 | 0.57 | 0.114 | -2.23 | 0.81 | 0.007 |
| Insured – caesarean/ complicated | -10.77 | 0.54 | 0.000 | -11.88 | 0.74 | 0.000 |
| Type of facility | | | | | | |
| Public (R) | 0.00 | | | 0.00 | | |
| Mission or private | -0.45 | 0.40 | 0.273 | 0.56 | 0.53 | 0.296 |
| Education* | | | | | | |
| No education (R) | 0.00 | | | 0.00 | | |
| Primary | -0.11 | 0.45 | 0.812 | -0.29 | 0.59 | 0.617 |
| Secondary or higher | -0.22 | 0.50 | 0.665 | -0.37 | 0.82 | 0.653 |
| Occupation* | | | | | | |
| No job (R) | 0.00 | | | 0.00 | | |
| Agriculture | 0.54 | 0.51 | 0.294 | -0.86 | 0.85 | 0.310 |
| Other | 0.30 | 0.30 | 0.323 | -0.72 | 0.78 | 0.354 |
| HH wealth | | | | | | |
| Poorest (R) | 0.00 | | | 0.00 | | |
| Poor middle | 0.14 | 0.68 | 0.837 | 0.42 | 0.81 | 0.607 |
| Middle | -0.30 | 0.75 | 0.688 | -0.08 | 0.83 | 0.921 |
| Middle rich | -0.36 | 1.17 | 0.759 | 0.11 | 0.83 | 0.895 |
| Richest | 0.13 | 0.60 | 0.000 | 0.65 | 0.88 | 0.465 |
| Sex of HH head | | | | | | |
| Male (R) | 0.00 | | | | | |
| Female | 0.90 | 0.41 | 0.035 | | | |
| Age of HH head | | | | | | |
| Less than 50 (R) | 0.00 | | | | | |
| 50+ | -0.92 | 0.46 | 0.052 | | | |
| Intercept | 11.25 | 0.61 | 0.000 | 11.91 | 0.93 | 0.000 |

\* For the household data, education and occupation reflect that of the household head, whereas for the patient exit data, these results reflect that of the survey respondent.

## 9.3    Summary: Insurance Enrollment and Maternity Care

For prenatal care, membership in insurance resulted in slightly more prenatal visits than for uninsured (6.5 vs. 5.7). The impact of insurance is somewhat more apparent for delivery care. Data from the household survey found that number of prenatal visits predicted delivery at a modern facility, although insurance status did not. Women at the peak of childbearing years (25-34) were significantly less likely than older women (35-49) to deliver at a facility. Insured women were

significantly more likely to deliver by caesarean than uninsured women. Furthermore, the proportion of insured women in Nkoranza who had caesarean delivery, 15.6 percent, is higher than the maximum recommended proportion of caesarean deliveries (15 percent) (Maine, McCarthy, and Ward 1992). This finding is suggestive of moral hazard in the utilization of caesarean delivery among insured women.

Although findings on average maternity care payments suggested that insured women from both the household and patient exit surveys paid less for delivery care than did uninsured women, further analysis revealed that the strongest effect derived from women who had a complicated or caesarean delivery, both of which were covered by the respective MHO. A less prominent effect was found for insured women in the patient exit sample who had a normal delivery.

# 10. Discussion

The findings presented in this report provide a baseline of health care utilization and out-of-pocket expenditures for six districts in Ghana, prior to implementation of the National Health Insurance Scheme. The information collected through both household surveys and patient exit interviews centered on curative care seeking for minor and major ailments, as well as maternity care. The study addresses key questions on the effects of insurance enrollment, particularly on equity of access, utilization, adverse selection, and out-of-pocket expenditures. A discussion of these issues and the potential implications for the NHIS follow.

## 10.1    Do Health Insurance Schemes Promote Equity?

A major impetus of the NHIS was to assure equitable and universal access to health care in Ghana through removing financial barriers imposed by user fees. Regression results on the predictors of seeking formal health care (curative and prenatal), delivering in a health facility, and ability to pay for inpatient care, found that wealth was a significant factor in the outcome of interest, supporting the notion that those with more financial resources have better access to and increased ability to pay for health care services.

Examination of predictors of household enrollment revealed that, while head of household factors such as older age, female gender, secondary education, and employment increased the likelihood of enrollment, wealth did not. However, when analyzing predictors of individual enrollment for both the household and patient exit samples, wealth did emerge as an important determinant of insurance enrollment. The differential between household and individual level predictors of enrollment found in the household survey is likely due to differences in sample sizes (1,307 households versus 9,553 individuals) and varying importance of other key factors, such as age and sex of household head, which resulted in higher odds in the individual model as compared to the household model.

Furthermore, findings on insurance enrollment also signal a potential problem with affordability of the NHIS premiums. It was reported earlier that half of currently uninsured households in Nkoranza had previously been insured. The prevailing reason cited for ending the membership was that the premiums were too expensive (79 percent). And 60 percent of Nkoranza households that have never been insured cited the same reason. A comparison of the distribution of wealth across the three groups in Nkoranza (currently insured, formerly insured, and never insured) further reveals that the currently insured group has a higher proportion of households in the top two wealth quintiles, compared to the formerly and never enrolled households. So there is some cause for concern about the affordability of the NHIS premiums, and whether a sufficient proportion of the population will be able to pay.

## 10.2    Are Health Insurance Schemes Affordable to All?

As discussed earlier, the NHIS premiums are set at 72,000 cedis per adult, such that in a typical two-parent family, all dependents under the age of 18 would be insured for the price of 144,000 cedis per year (US$17.00). However, one of the study districts, Savelugu, has indicated that this premium is more than its residents can afford to pay, asserting instead that families in this district could only afford 25,000 cedis per adult per annum. It remains to be seen how the government will react to this issue, but it may need to make allowances for deprived districts, if evidence supports an inability to afford the established national premiums. This would be more in-line with how CBHI schemes typically operate, allowing the district MHO schemes more autonomy and the ability to respond to community needs (Bennett, Gamble Kelley, and Silvers 2004).

Table 10.1 presents an illustrative comparison of benefits and enrollment costs for a typical family of five for the insurance schemes discussed in this report: NHIS, Nkoranza, and Okwahuman. Premium rates for the CBHI schemes were in effect at the time of the baseline survey (October 2004). While the NHIS offers a comprehensive benefits package, including inpatient and outpatient care, both CBHI schemes offered primarily inpatient coverage. It is interesting to note that the total family cost for the NHIS is about the same as the Nkoranza premiums, but is nearly 100,000 cedis less than the Okwahuman premiums. From the perspective of the enrollee, the NHIS appears to offer a better health value, for about the same or less than existing CBHI schemes.

**Table 10.1 Illustrative Comparison of Health Insurance Schemes for Typical Two-Parent Family of Five, in Cedis**

|  | Covered Benefits | Registration Fee | Premium | Per Person Total | Total Family Cost |
|---|---|---|---|---|---|
| NHIS | Comprehensive inpatient and outpatient (See Annex A) | -- | 72,000/adult | 72,000 | 144,000 |
| Nkoranza Scheme |  |  |  |  |  |
| Initial Year | Inpatient <br> Dog and snake bites | -- | 30,000/family member | 30,000 | 150,000 |
| Subsequent Years |  | -- | 25,000/family member | 25,000 | 125,000 |
| Okwahuman Scheme |  |  |  |  |  |
| Initial Year | Inpatient <br> Dog, snake, cat bites | 8,000 | 40,000/family member | 48,000 | 240,000 |
| Subsequent Years |  | -- | 40,000/family member | 40,000 | 200,000 |

Lending further support is the fact that the NHIS premium structure actually benefits larger families, as regardless of the number of dependents in the family, the total family premium remains the same. Finally, examination of payment data presented in this report suggests that Ghanaians are paying significant amounts for health care, particularly the uninsured. Uninsured inpatients paid 190,000-490,000 cedis per hospitalization, and uninsured women paid 125,000-246,000 cedis for delivery care. In light of these potentially catastrophic expenditures for a single medical event, the family premium of 144,000 cedis is all the more attractive. These factors combined present a strong argument for the established annual premiums of 72,000 cedis per adult.

*Implications*: The premiums set forth for the NHIS appear to be within reach of many Ghanaians, particularly in light of average out-of-pocket payments revealed by this study. However, the government may still face pressure to allow discretion to lower premiums in deprived districts, or to modify the proportion of residents it considers indigent.

## 10.3    Does Enrollment in Insurance Increase Health Care Utilization?

The study found that insured respondents in the household survey were nearly two times as likely to seek formal outpatient care than were their uninsured counterparts. Insured respondents were also significantly more likely than uninsured to seek care within the first two days of illness, and to bypass informal care and go directly to a formal health facility.

The findings presented in this report found few examples of moral hazard, or the practice of over-utilizing health care services. Moral hazard is implicated in the high rate of caesarean delivery reported by women insured in the Nkoranza scheme. Among this sample of women, 15 percent reported delivering by caesarean, whereas universal indications for this surgical procedure range from 5 percent to 10 percent. In a CBHI scheme such as Nkoranza, which covers inpatient services but excludes normal delivery care, the restricted package of benefits can lead to distortions based on which services are covered. In the case of caesarean deliveries, it would be to everyone's advantage to reduce the incidence of this surgical procedure, especially when it is not medically indicated.

*Implication*: Beyond avoiding caesarean delivery, there are likely to be significant advantages to covering primary and preventative health care services including normal deliveries, as is the practice of health management organizations in developed countries.

## 10.4    Are Individuals at Higher Health Risk More Likely to Join Health Insurance Schemes?

The present evaluation found some evidence of adverse selection through analysis of the household data. First, women age 15-49 and adults over the age of 50 were significantly more likely to be enrolled, and children age 0-4 were significantly less likely to be enrolled in an insurance scheme. This suggests that individuals from higher-risk groups were more inclined to join the Nkoranza scheme, whereas those at lesser risk were less inclined to join.

While the findings from this study suggest some degree of adverse selection, in the long erm this should have little effect on the NHIS, if the program meets its objectives of universal (or near-universal) coverage. The large scale of the NHIS will expand the risk pool exponentially, and thus minimize the effects of adverse selection. However, given the relatively slow and uneven uptake of enrollment into the NHIS, the effects of adverse selection may prove challenging in the near term, this assuming that high-risk individuals are the first to enroll, and thus will negatively affect the risk distribution.

*Implication*: In the long term, mandatory enrollment in the NHIS would minimize the impact of adverse selection and help pool the risk. In the short term, an accelerated and even uptake of NHIS enrollment across population segments would ease adverse selection concerns, although this may introduce other logistical problems.

## 10.5 Does Enrollment in Health Insurance Offer Protection from High Out-of-Pocket Expenditures?

In general, the findings demonstrated that enrollment in an insurance scheme does offer household income protection. As expected, insurance membership did not effect out-of-pocket payments for outpatient care. In fact, total payments for the recent curative care seeking episode are amazingly uniform across insured and uninsured groups in each sample, with a variation of only 7,000 cedis. This can be explained by the fact that both the Nkoranza and Okwahuman insurance schemes primarily cover inpatient care.

However, significant differences in out-of-pocket payments between insured and uninsured respondents were evident for inpatient care. For the household sample, insured Nkoranza respondents paid on average 59,000 cedis, compared to 491,000 cedis for uninsured Nkoranza respondents. Uninsured patients paid nearly 10 times the amount that insured patients paid for inpatient care. The patient exit data supports this observation: mean payment for care for insured patients are between 8 and 14 percent of the mean payment for uninsured patients.

The effects of insurance enrollment on expenditures for maternity care vary by type of care (prenatal or delivery). Results from the household survey found that insured Nkoranza women actually paid more for prenatal care than did uninsured women in the district. Again, this result is not too surprising, as Nkoranza insurance does not cover prenatal consultations. However, significant difference in mean payments between insured and uninsured women were apparent for delivery. Nkoranza uninsured women paid 2.5 times more for delivery care than did insured women. Offinso women paid the most for both prenatal and delivery care, with a combined payment of more than twice what insured women in Nkoranza paid. These results clearly demonstrate household income protection for insured respondents. As for women in the patient exit survey, while prenatal payment data are not available, a comparison of delivery payments shows that insured women paid, on average, three to five times less than the amount paid by their uninsured counterparts

*Implication*: Insurance membership has been shown to be particularly effective in protecting members from catastrophic health expenditures. If families can be convinced to enroll in the NHIS, the cost savings will likely be significant. By including primary and preventive health care coverage, the government of Ghana should also benefit from cost savings.

This study has attempted to capture information related to health care utilization and out-of-pocket expenditures prior to the inauguration of national health insurance in Ghana. It is envisaged that the results of this study in and of themselves will be of service to the government of Ghana as it continues to implement its ambitious NHIS in partnership with district managers. However, the original evaluation design called for conducting a subsequent round of surveys to monitor the impact of NHIS in the six demonstration districts over time. Such a survey would capture increases in insurance enrollment, as well as the effects of enrollment on health care seeking behavior and out-of-pocket expenditures. In addition, a subsequent survey could complement district MHO data by providing insights on respondents' perceptions of the NHIS, and for the uninsured, reasons for not enrolling. The relatively minor cost of such a survey could yield significant benefits to all involved, and could lead to a better understanding the true impact of implementing national health insurance in Ghana.

# Annex A. Ghana NHIS: Benefits Package

***Outpatient Services***
- ▲ Consultations including reviews: these include both general and specialist consultations.
- ▲ Requested investigations (including laboratory investigations, x-rays, ultrasound etc) for general and specialist out-patient services.
- ▲ Medication (prescription drugs on National Health Insurance Scheme Drugs List, traditional medicines approved by Food and Drugs Board and prescribed by accredited practitioners)
- ▲ Out-patients/Day surgical operations.
- ▲ (e.g., hernia repair, incision and drainage etc)
- ▲ Out-patient physiotherapy.

***Inpatient Services***
- ▲ General and specialist in-patient care
- ▲ Requested investigations (including laboratory investigations, x-rays, ultrasound scanning etc) for in-patient care
- ▲ Medication (prescription drugs on National Health Insurance Scheme Drug List, blood and blood products)
- ▲ Cervical and breast cancer treatment
- ▲ Surgical operations
- ▲ In-patient physiotherapy
- ▲ Accommodation (General Ward)
- ▲ Feeding (where available).

***Other Specific Services***
- ▲ Oral health services
- ▲ Pain relief (e.g., incision and drainage, tooth extraction, temporary relief)
- ▲ Dental restoration (simple amalgam filling, temporary cressing)

***Eye Care Services***
- ▲ Refraction
- ▲ Visual fields
- ▲ A-scan
- ▲ Keratometry
- ▲ Cataract removal
- ▲ Eye lid surgery

***Maternity Care***
- ▲ Antenatal care
- ▲ Deliveries (normal and assisted)
- ▲ Caesarean section
- ▲ Postnatal care

***Emergencies***
- ▲ All emergencies shall be covered. These refer to crisis health situations that demand urgent intervention. They shall include:
  - ▲ Medical emergencies
  - ▲ Surgical emergencies (including brain surgery due to accidents)
  - ▲ Paediatric emergencies
  - ▲ Obstetric and gynaecological emergencies (including Caesarean Section)
  - ▲ Road traffic accidents
  - ▲ Dialysis for acute renal failure

***Public Health Services funded under special programme***
- ▲ Some services are already being provided free of charge by Government through its public health programs.
- ▲ Under the National Health Insurance Scheme government will continue to provide these services free of charge. These include:
  - ▲ Immunization
  - ▲ Family planning
  - ▲ In-patient and out-patient treatment of mental illness
  - ▲ Treatment of Tuberculosis, Onchocerciasis, Buruli Ulcer, Trachoma
  - ▲ Confirmatory HIV test for AIDS patients

Source: Guidelines for design and implementation of Mutual Health Insurance schemes in Ghana. July 2004

# Annex B. Ghana NHIS: Excluded Benefits

The NHIS is intended to cover basic healthcare treatment. As such, certain services will not be covered under the National Health Insurance Scheme. District health insurance schemes have the discretion to decide whether or not they will offer the following services as additional benefits to their members.

- Rehabilitation other than physiotherapy
- Appliances and prostheses (optical aids, hearing aids, orthopaedic aids, dentures etc)
- Cosmetic surgeries and aesthetic treatments
- HIV retroviral drugs (symptomatic treatment of opportunistic infections and other AIDS-related diseases will be covered).
- Assisted reproduction (e.g., artificial insemination) and gynaecological hormone replacement therapy
- Echocardiography
- Photography
- Angiography
- Orthopaedics
- Dialysis for chronic renal failure
- Organ transplantation
- All drugs that are not listed on the NHIS drugs list
- Heart and Brain Surgery (other than those resulting from accidents) and Cancer treatment (other than breast and cervical)
- Mortuary Services
- Diagnosis and treatment abroad
- Medical examinations for purposes other than treatment in accredited health facilities (e.g., visa application, educational, institutional, driving license etc)
- VIP ward (Accommodation)

Source: Guidelines for design and implementation of Mutual Health Insurance schemes in Ghana. July 2004

# Annex C: Bibliography

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